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Model Railroader®

January 2018 • www.ModelRailroader.com

Come back to 1957

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Winston-Salem Southbound project p.46

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layout gets
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CONTENT
CODE PG. 4**

Vol. 85 • Issue 1

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Both ends of the spectrum



On the cover: It's a hot

summer day in North Carolina as the crew gets to work on the Winston-Salem Southbound. Bill Zuback photo



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In February, Cody Grivno shows you how to get that paint scheme you need, Pelle Søbørg finishes his Safety Kleen project, we visit a B&O HO layout, and more!



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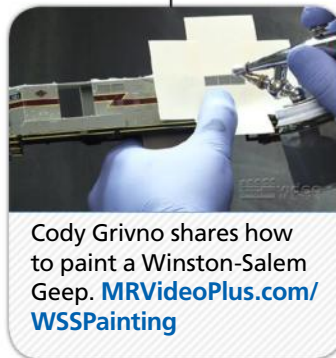




Link. Look. Learn more!

When this month's cover feature concludes in print, the story continues on Model Railroader Video Plus! Visit MRVideoPlus.com to find more than 60 step-by-step videos covering all aspects of building and operating the Tar Branch. Not an MRVP subscriber yet? Watch the FREE VIDEOS to see what you've been missing!

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Product demos and bonus photos

Find the [full product review](#) for the all-new ScaleTrains.com HO scale GEVO Tier 4 diesel on page 68. *Model Railroader* subscribers can also watch an exclusive video and see bonus photos of the superdetailed and sound-equipped model. Click on the link under Online Extras at the MR home page.

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Computer desktop wallpaper

Get inspired with a trackside photo as a background on your computer screen. This month's wallpaper image is from Bob Wolfe's HO railroad on page 78. Click on the link under Online Extras.

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We always come back to this truth

If you look closely at the cover of this month's magazine, you'll notice a subtle change to the left side of the *Model Railroader* blue box. The "Model railroading is fun!" slogan is back on the cover, where it belongs.

We've had it inside the magazine for some years, but I thought it deserved a more prominent position. The slogan isn't just some marketing hype. It's at the core of why this magazine has been produced these 84 years.

The saying first appeared on the MR cover in April 1949, not long after the magazine's 15th anniversary.

In looking back through old issues, I was surprised to see how many times it's been on and off the cover over the decades, replaced by other slogans like "The practical how-to-do-it magazine," and "Exclusively scale model railroading." One of my favorites

was "Makes model railroading more fun."

Ultimately, though, we always come back to model railroading is fun. Because, well, it simply is.

To wit, I recently attended the Mid-Eastern Region National Model Railroad Association convention hosted in Harrisburg, Pa., by the Susquehanna Division.

It was a fantastic weekend of clinics, layout tours, and being with people who not only enjoy the hobby but are happy to share what they know about it. Many of them know a lot.

I was invited to an operating session on convention chairman Bob Charles' Pennsylvania RR layout. Not having a ton of operations experience, it made me a little nervous, but sounded like fun. The railroad is run by timetable and train order, and

one of the other guests was Steve King, a guy who has literally written the book on how to run a model railroad this way. No pressure.

Of the 10 or so guests who came, we had a good mix of people who operate on railroads regularly and some like me who do it more intermittently. Steve presided over the operations and patiently got everyone moving around the railroad. Before we knew it, several hours had gone by. Time really does fly when you're having fun, and we truly did.

Actually, I had less trouble with the operating rules and more with how I was going to put my train back together after tying a nice knot in my switching job. I'm pretty sure Bob is still chuckling over giving me that assignment.

Speaking of assignments, we have one for you. We'd like to



see what you do with your trains as far as winter and holiday scenes. Maybe you set a train up under the Christmas tree, or perhaps you have a snow scene on your layout year-round.

Email photos and descriptions (150 words or less) to us at mrmag@mrmag.com with "Holiday photos" in the subject line. Happy holidays!

Model Railroader. Model railroading is fun!

Founder A.C. Kalmbach 1910-1981
Editor Hal Miller
Managing Editor Jeff Reich
Senior Editor Dana Kavala
Associate Editors Cody Grivno, Steven Otte, Eric White
Contributing Editors Tony Koester, Pelle Søborg, Larry Puckett, Lou Sassi

Phone 262-796-8776
E-mail mrmag@mrmag.com
Fax 262-796-1142

Model Railroader Art Team

Art Director Thomas G. Danneman
Senior Graphic Designers Scott Krall, Drew Halverson
Lead Illustrator Rick Johnson
Production Specialist Cindy Barder

Model Railroader Video Plus

Producer A. David Popp
Associate Producer Kent Johnson
Associate Editor Ben Lake
Assistant Editor Jenny Maaske

Contributing to Model Railroader

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98816 N&W #1603
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98716 N&W #1603
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98722 UP #3028

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98301 NYS&W #3012
98302 NYS&W #3014
98303 NYS&W #3016
98304 UP #2881
98305 UP #2886
98306 UP #2888

SD40T-2 DCC READY SUPER SALE \$99.99 EA.
98313 UP #2934
98315 UP #8795

HO Scale Ready-to-Roll Atheme SD-45 DCC & SOUND \$144.99 EA.
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65105 NS #3145
65113 SP #7559

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98006 F&E FERROMEX #3196
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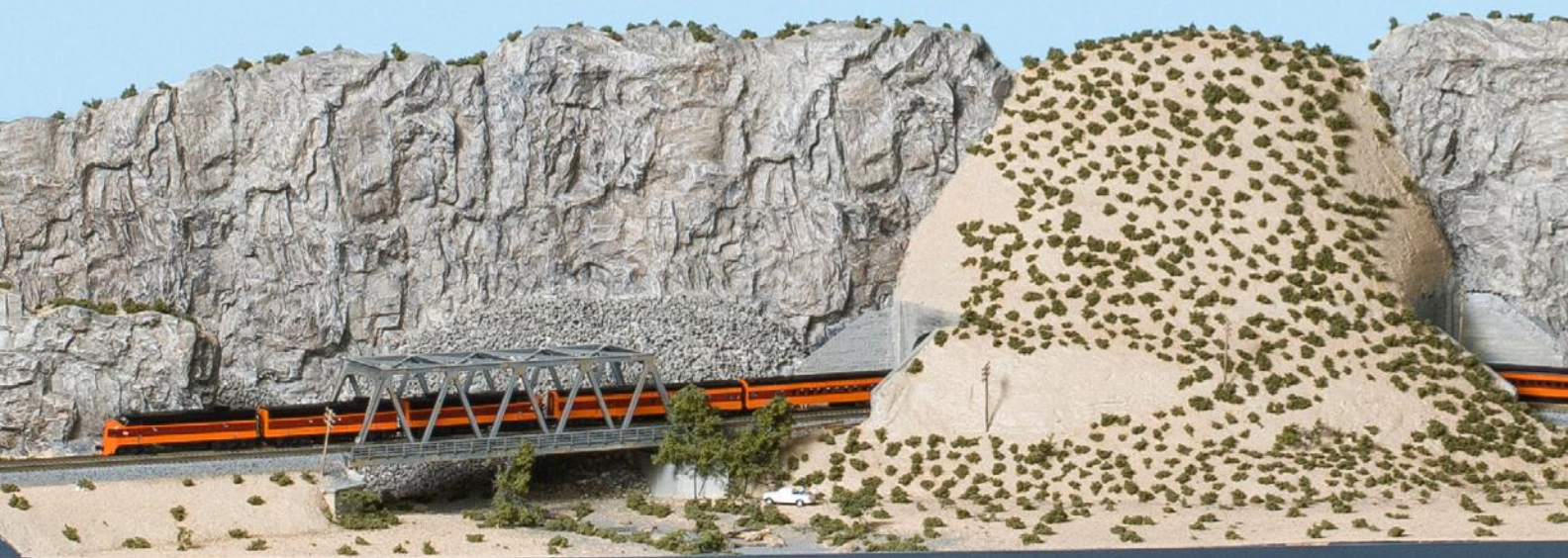
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Milwaukee Road *Olympian Hiawatha*. Kato has released its much-anticipated N scale name train. The nine-car Milwaukee Road *Olympian Hiawatha* (\$280) includes a baggage-dormitory; two 48-seat coaches; a Super Dome lounge; a diner; a 14-section Touralux sleeper (*Mount St. Helens*); two 10-roomette, six-double-bedroom sleepers (*Lake Pewaukee*

and *Lake Oconomowoc*); and an 8-double-bedroom lounge-observation (*Coffee Creek*). In addition, Kato offers an Electro-Motive Division FP7 and F7B set (\$190) and a single FP7 (\$110). Alternate number boards (nos. 90A and 95C) are available for \$3. Kato USA Inc., 847-781-9574, www.katousa.com

H0 scale locomotives

- **Electro-Motive Division GP35 diesel locomotive.** BNSF Ry. (Atchison, Topeka & Santa Fe patchout), Chicago & Eastern Illinois, Kansas City Terminal (two road numbers), Lycoming Valley (two numbers), Montana Rail Link, and Western Pacific (orange in one number, dark green in three numbers). Three numbers per scheme unless noted. Wire grab irons, die-cast metal frame, and McHenry scale couplers. Direct-current model with 8- and 9-pin connector for Digital Command Control decoder, \$129.98. August 2018. Round-house line. Athearn Trains, 800-338-4639, www.athearn.com

- **Electro-Motive Division SD35 diesel locomotive.** New paint scheme: Chessie System (Toledo Ore RR Co. reporting marks, two road numbers). New numbers: Central of Georgia (high short hood), Central RR of New Jersey (green and yellow), Chessie System (Western Maryland marks, two numbers), Conrail, Norfolk & Western, Penn Central (black and white in two

numbers, with red “P” in one number), and Southern Pacific. Three numbers per scheme unless noted; also available undecorated (low short hood with and without headlight and high short hood). Detailed cab interior with crew figures, directional golden-white light-emitting-diode headlights, and Accumate couplers. Direct-current model, \$169.95; with dual-mode ESU LokSound Select sound decoder, \$279.95. Second quarter 2018. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

- **Baldwin DS 4-4-1000 diesel locomotive.** Bessemer & Lake Erie, Central RR Co. of New Jersey (Statue of Liberty herald and Baltimore & Ohio patchout), Copper Range RR (two road numbers), Canadian Pacific (maroon and gray with and without front and rear number boards), Lehigh Valley (Tuscan with gray flag and small road numbers and Tuscan with white flag and large road numbers), Milwaukee Road (orange and black 1959 renumber, with and without hood-top safety railings), Nickel Plate Road (two numbers), Pennsylvania RR (Brunswick Green mid-1960s renumbering, two

numbers), SMS (ex-Copper Range and ex-Pennsylvania RR units), Southern Pacific (scarlet and gray, one number with road name on one line, one number with road name on two lines), Southern Ry. (black tuxedo scheme, two numbers), and Union Pacific (“Road of the Streamliners” slogan, two numbers). Can motor with flywheels, nickel-silver wheels, and grab irons. Direct-current model with 21-pin socket for Digital Command Control decoder, \$189.95; with ESU LokSound Select DCC sound decoder, \$289.95. Summer 2018. Executive Line. Bowser Manufacturing Co. Inc., 800-327-5126, www.bowser-trains.com

- **Electro-Motive Division SD7 and SD9 diesel locomotives.** SD7: Burlington Northern, Great Northern (*Empire Builder* scheme), Southern Pacific (as-delivered scheme), and Union Pacific (“Route of the Streamliners” slogan). SD9: Chicago, Burlington & Quincy (“Way of the Zephyrs” slogan), Denver & Rio Grande Western (bumblebee scheme), Pennsylvania RR (Brunswick Green), and Southern Pacific (gray and scarlet). Two road numbers per



scheme; both body styles also available undecorated. \$299.99. Plastic body with die-cast metal chassis, Paragon 3 dual-mode sound decoder, and factory-installed crew figures. Broadway Limited Imports, 386-673-8900, www.broadway-limited.com

- **General Electric Tier 4 locomotives.** BNSF Ry. (ET44C4), Canadian National (EF-644t), CSX (ET44AH), Navajo Transitional Energy Co. (two road numbers), Norfolk Southern, and Union Pacific (C45AH). Six numbers per road name unless noted. Injection-molded plastic body with railroad-specific details and wire grab irons. ESU motor-only decoder, \$219.95; with ESU LokSound sound decoder, \$299.95. Direct-current plug available upon request. Early 2018. InterMountain Railway Co., 800-472-2530, www.intermountain-railway.com

- **Self-propelled track cleaning engine.** Features TCS dual-mode decoder, abrasive and cloth cleaning pads, two rare-earth magnets, vortex vacuum, and working beacon. \$329.95. Korea Brass USA, www.korea-brass-usa.com



- **Atchison, Topeka & Santa Fe Budd RDC-1 and RDC-1m set.** Cast trucks;

HO scale



Milwaukee, Racine & Troy

cabooses. Bring a piece of *Model Railroader's* layout to your home empire with these offerings from Atlas Model Railroad Co. The firm is offering riding platform no. 79 (based on an article in the November 2013 MR) in one road number and wide-cupola cabooses in two numbers. The models have roller-bearing trucks, a separate brake cylinder, and running boards as appropriate. The models are priced at **\$41.95** each. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

reinforced cab ends with warbonnet paint; door-mounted Gyalite; detailed, illuminated interior; working headlights, class lights, and number boxes; and twin-motor drive system. Rapido will donate 5 percent of the retail price to the restoration of DC-191 at the Orange Empire Railway Museum. Direct-current set, \$450; with dual-

mode sound decoder, \$650. 2018 delivery. Rapido Trains Inc., 905-474-3314, www.rapidotrains.com

- **Electro-Motive Diesel SD70ACe diesel locomotive.** Arkansas & Missouri (two road numbers), Canadian National (ex-EMD demonstrator), CSX (dark blue and yellow), Ferromex, Norfolk Southern, and Providence & Worcester

HO scale



Association of American Railroads 40-foot 1944 boxcars.

The latest additions to the Walther's Mainline include boxcars decorated for Spokane, Portland & Seattle; Ann Arbor; Northern Pacific; Missouri Pacific ("Route of the Eagles" slogan); New York, New Haven & Hartford (black with orange door); and Southern Pacific (silver with black ends). The HO scale Association of American Railroads boxcars (\$27.98) are offered in two road numbers per scheme. Wm. K. Walther's Inc., 414-527-0770, www.walther.com

(two numbers). Four numbers per scheme unless noted. Molded drill starter points for grab irons, light-emitting-diode headlights, and Proto-Max couplers. Direct-current model, \$129.98; with dual-mode ESU sound decoder, \$199.98. Walther's Mainline. Wm. K. Walther's Inc., 414-527-0770, www.walther.com

HO scale freight cars

- **Assorted freight car kits.** CP Rail 50-foot plug-door boxcar with exterior posts ("Newsprint Service Only" stencil), \$17.98. Delaware, Lackawanna & Western 36-foot double-sheathed boxcar with wood ends and straight underframe, \$17.98. Cleveland, Cincinnati, Chicago & St. Louis panel-side two-bay hopper (single car, \$16.98; three-pack, \$49.98). New York, New Haven & Hartford 36-foot double-sheathed boxcar with metal ends and straight underframe, \$17.98. Pennsylvania RR Pullman-Standard 4,750-cubic-foot-capacity three-bay covered hopper, \$19.98. Injection-molded plastic kits with plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www accurail.com

- **Pacific Car & Foundry 50-foot plug-door boxcar.** Evergreen Freight Car Corp., Illinois Central (Southern Pacific patchout, two road numbers), Southern Pacific (1988 version in two numbers and 1978 version), and SP Construction (Fiber Optic Service, one number). Four numbers per scheme unless noted. Separately applied door closure rods and side ladders, wire grab irons, and 70-ton trucks with rotating bearing caps. \$39.98. August 2018. Genesis series. Athearn Trains, 800-338-4639, www.athearn.com
- **American Car & Foundry 11,000-gallon tank car.** New road numbers, without platforms: California Dispatch Line. New paint schemes, with platforms: Columbia Southern, Dow, DuPont, Olin Chemical Division, PPG Chemicals, and Texas Natural Gasoline Corp. Two numbers per scheme; also available undecorated (with and without platforms). Tank fittings and safety placards, 50-ton solid-bearing trucks, and Accumate couplers. \$42.95 (undecorated, \$24.95). First quarter 2018. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com
- **Assorted cabooses.** Short-body bay-window caboose: Missouri Pacific.

Transfer cabooses: Atchison, Topeka & Santa Fe; Burlington Northern (Cascade Green and Great Northern patchout, one road number each); Chessie System (Baltimore & Ohio reporting marks, one number); Chicago & North Western; Delaware & Hudson (one number); Elgin, Joliet & Eastern (one number); Family Lines (Louisville & Nashville marks, one number); Grand Trunk Western; Great Northern; Illinois Central Gulf; Napierville Junction RR (one number); Penn Central; St. Louis-San Francisco; Toledo, Peoria & Western; and Union Pacific. Two numbers per scheme unless noted. Plastic body, wire grab irons, and metal wheels. \$49.95. Bluford Shops LLC, 618-822-6833, www.bluford-shops.com



- **Pullman-Standard PS-1 40-foot Mini-Hy Cube boxcar.** New paint schemes: Burlington Northern (1973 and

1975 Cascade Green, one road number each); Chicago, Burlington & Quincy (1970 Havelock repaint, one number); Denver & Rio Grande Western (1967 brown with "DF" stencil, three numbers); and Illinois Central Gulf (1972 repaint with skinny letters and 1977 repaint with wide letters, one number each). See-through crossover platforms, 70-ton Barber S-2-A roller-bearing trucks with 33" metal wheels, and Kadee scale couplers. \$44.95. Tangent Scale Models, 828-279-6106, www.tangentscalemodels.com

HO scale structures

- **Freight station.** Laser-cut wood kit with removable roof and paper shingles. Measures 7½" x 4½" x 2¾". \$109.95. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com
- **Cazin's car workshop.** Laser-cut cardboard kit. Based on prototype photo of a French garage from the 1950s. Assemble with wood glue. Paint with acrylic or gouache. Measures



Electro-Motive Division GP9 diesel locomotive. This Southern Pacific road switcher features an Electro-Motive Division low short hood, see-through fan screens, a detailed cab interior, and factory-installed and painted wire grab irons. The HO scale Genesis series model is decorated for SP in four road numbers. Direct-current models sell for **\$189.98**; versions with a dual-mode SoundTraxx sound decoder have a manufacturer's suggested retail price of **\$289.98**. Athearn Trains, 800-338-4639, www.athearn.com



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Scene and photography by Ken J. Johnson
Preproduction model shown

N scale



Assorted freight cars. Now available from Micro-Trains are a Gulf 56-foot general-service tank car (two road numbers), **\$32.90**; a Grand Trunk Western 50-foot double-door automobile boxcar, **\$25.30**; and a Baltimore & Ohio 33-foot

two-bay war-emergency hopper with coal load, **\$23.90**. The injection-molded plastic N scale models have plastic wheelsets and Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

4.33" x 2.44" x 3.34". \$40.80 (price may vary based on exchange rate). Minifer, www.minifer.fr/en/

H0 scale details and accessories

- **Wabash National 53-foot plate trailer.** Burlington Motor Carriers, Dart, Heartland Express, Schneider National, XTRA Lease, and owner/operator (two numbers). Three numbers per scheme unless noted. Positionable rear bogie, vinyl tires, and printed mudflaps. \$29.98. July 2018. Athearn Trains, 800-338-4639, www.athearn.com

- **45-foot intermodal containers.** Maersk, Matson, Sea Castle, and Triton. Two three-packs per name. \$42.95. First quarter 2018. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

N scale locomotives



- **General Electric P42 diesel locomotive.** VIA Rail Canada (Canada 150 scheme). Three road numbers. Golden white light-emitting-diode headlights, printed number boards, and body-mounted Kato couplers. \$185. Kobo Custom line. Kato USA Inc., 847-781-9574, www.katousa.com

N scale freight cars

- **Richmond Tank Car 20,900-gallon tank car.** Government of Alberta (UTLX reporting marks), Honeywell International Inc., Old World Transportation Ltd., Procor, Pullman Transport Leasing, Transportation Energy Inc., and Southern Pacific (fuel tender, one road number). Three numbers per scheme. Prototype-specific trucks, metal wheelsets (33" or 36" as appropriate), and body-mounted McHenry scale couplers. \$26.98. August 2018. Athearn N. Athearn Trains, 800-338-4639, www.athearn.com

- **FMC 50-foot combination-door boxcar.** Burlington Northern; Minnesota, Dakota & Western (white); Missouri Pacific; Seaboard Coast Line ("Smooth Cushioned Load" lettering); Railbox (factory weathered); and Union Pacific ("We Can Handle It" slogan). Three road numbers per scheme; also available undecorated. Screw-mounted roller-bearing trucks with metal wheels and body-mounted McHenry couplers. \$22.98. September 2018. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

- **General Steel Castings V-deck 42-foot pulpwood bulkhead flatcar.** New road numbers: Atlantic Coast Line; Delaware & Hudson; Gulf, Mobile & Ohio; Illinois Central Gulf; Maine Central; and Western Maryland. Two road numbers per scheme; also available undecorated. Die-cast metal chassis,

plastic deck and bulkheads, and pulpwood load. \$21.95 (undecorated, \$16.95). Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

- **Aluminum-sided auto rack.** New paint schemes: Amtrak (phases 3 and 4). Two four-packs per scheme. All-wheel electrical pickup, blackened metal wheels, and Kato knuckle couplers. Four-pack, \$95. Kato USA Inc., 847-781-9500, www.katousa.com

N scale passenger cars



- **70-foot heavyweight baggage-Railway Express Agency.** New paint scheme: Norfolk & Western. Injection-molded plastic with plastic wheelsets, clear window glazing, and Magne-Matic couplers. \$32.90. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

N scale structures



- **Sunny Days trailer.** Factory-painted and weathered structure with awnings,

wood railings and steps, TV antenna, window treatments, printed interior, and separate tables and chairs. Features light-emitting-diode interior lighting (for use with Just Plug Lighting System). \$54.99. Built & Ready Landmark Structures. Woodland Scenics, 573-346-5555, www.woodlandscenics.com

N scale details and accessories

- **Tri-State Commodities tractor-trailer sets.** Modified Kenworth W900 "Toad's Pad" with dry bulk trailer and Modified Kenworth W900 "American Graffiti" with grain trailer. \$64.95 each. First quarter 2018. Legends of the Road series. Trainworx, 970-874-9747, www.train-worx.com

O scale freight cars

- **American Car & Foundry 11,000-gallon tank car.** New paint schemes: Columbia Southern, Dow, DuPont, Olin Chemicals Division, and PPG Chemicals. Two road numbers per

HO scale



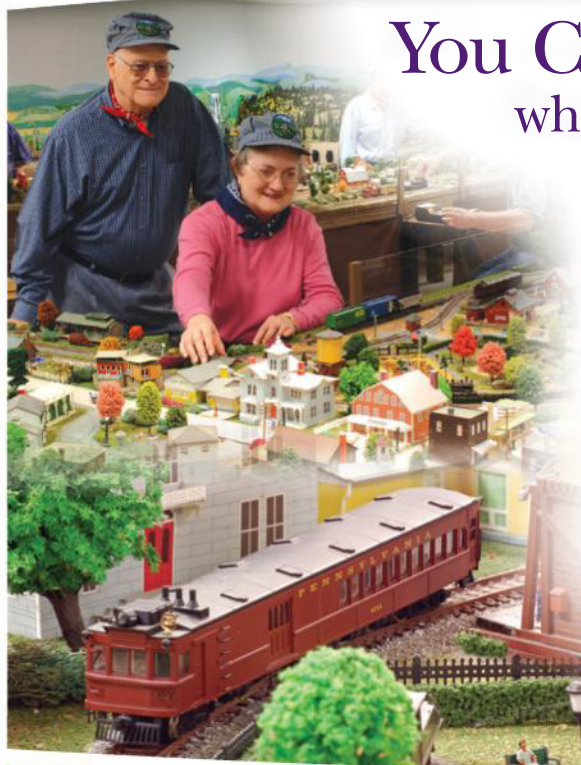
John Deere equipment. These die-cast metal and plastic models are the latest offerings from Ertl. The John Deere line includes a 310SE backhoe loader (\$17.99), a 9510 combine (\$13.99), 8200 tractor (\$6.99), and a 4020 tractor (\$5.99). The models have vinyl tires and a separately applied steering wheel. The backhoe loader and combine feature positionable parts; the combine includes modeler installed header, railings, and warning arms. You can purchase the HO models at your local John Deere dealer, www.deere.com/en/

scheme. Die-cast metal chassis; sprung, die-cast metal 50-ton solid-bearing trucks; separately applied handrails; and factory-painted and installed wire grab irons. \$77.95. Atlas O, 908-687-9590, www.atlaso.com

S scale freight cars

- **Kasgro Rail Corp. heavy-duty depressed-center flatcar no. 163201.** Cast-resin kit with assembly hardware and decals but no trucks or couplers. Flatcar,

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Showcase



1 Fire station no. 12. This factory-assembled and painted HO scale structure from Menards has 16 light-emitting diodes, a fire truck, a motor-driven roof vent, and seven figures. Lighting requires a 4.5V adapter (sold separately). The fire station sells for **\$69.99** plus shipping (free shipping to your local Menards store). Menards, www.menards.com

2 55-ton two-bay coal hopper. New paint schemes on this Atlas O car include Kansas, Oklahoma & Gulf; Boston & Maine; Canadian National; Virginian Ry.; and

Westmoreland Coal Co. The O scale hopper (**\$79.95**) is offered in four road numbers per scheme. It has die-cast metal Andrews trucks; sprung, operating hopper doors; and wire grab irons. Atlas O, 908-687-9590, www.atlaso.com

3 70-foot heavyweights baggage car. Micro-Trains offers this model decorated as Denver & Rio Grande Western no. 711. The N scale car has plastic wheelsets and Magne-Matic couplers. It retails for **\$34.90**. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

4 Electro-Motive Division GP40P-2 diesel locomotive. Athearn offers this locomotive decorated for Southern Pacific (American Revolution Bicentennial scheme in one road number, scarlet and gray in two numbers). The HO scale Genesis series model has a single rear headlight and a split fuel tank with a steam-generator water tank. Direct-current models are priced at **\$169.98**. Versions with a dual-mode Sound-Traxx Tsunami2 sound decoder retail for **\$269.98**. Athearn Trains, 800-338-4639, www.athearn.com

5 General American Transportation Corp. 4,566-cubic-foot-capacity covered hopper. In stores now is this ScaleTrains.com Rivet Counter line model lettered for Archer Daniels Midland, Missouri Pacific, General American (gray buffer service car in two road numbers and Wonder Bread/Hostess Cakes), and Union Pacific. The HO scale models (**\$39.99**) are offered in four numbers per scheme unless noted and have etched-metal running boards and metal Type E couplers. ScaleTrains.com, 844-987-2467, www.scaletrains.com

\$69.99; flatcar with load kit, \$114.99. Concept Models, www.con-sys.com

- **Cryogenic tank car.** Cast-resin kit with assembly hardware but no detail parts. \$34.99. Concept Models, www.con-sys.com

S scale passenger equipment

- **American Car & Foundry steel welded-side express refrigerator cars.** Atlantic Coast Line 3000 through 3049-series (as-built purple and aluminum with yellow stripes and white lettering) and Railway Express Agency 6100 through 6599-series (as-built dark green and aluminum with red stripes and Dulux Gold lettering, mid-1950s dark green repaint with Dulux Gold lettering, and modernized 1962 car with Apple Green paint and white speed lettering). Factory-painted brass models. Pre-production price, \$389; post-production price, \$429. River Raisin Models, 248-366-9621, www.riverraisinmodels.com

S scale structures



- **Coal trestle.** Laser-engraved kit with cast-resin abutments. Accommodates one two-bay hopper. Multiple kits can be combined to build a larger trestle. \$40. East West Rail Service, www.eastwestrailservice.com

Z scale locomotives

- **Budd Rail Diesel Car.** VIA Rail Canada. Two road numbers. Directional light-emitting-diode headlights and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com



- **General Electric ES44AC diesel locomotive.** New paint scheme: Kansas City Southern. Three road numbers. Prototype-specific details, directional light-emitting-diode headlights, working ditch lights, traction tires, and can motor with dual flywheels. American Z Line, 614-764-1703, www.americanzline.com

Z scale freight cars



- **40-foot single-sheathed boxcar.** Atchison, Topeka & Santa Fe. Eleven road numbers (single car, two-pack, and

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HO scale



General Motors Diesel Division SD40-2F. Bowser trains has added this six-axle Canadian road unit to its Executive Line. The HO scale SD40-2F is decorated in four Canadian Pacific paint schemes, two or three numbers per scheme. The models feature a detailed cab interior, metal grab irons, a brass bell

and air horn, operating ditch lights and class lights, and Kadee couplers. Direct-current models retail for **\$219.95**. Versions with an ESU LokSound Digital Command Control sound decoder are priced at **\$319.95**. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com

two four-packs). Separately applied brake wheel and etched-metal running boards, positionable doors, blackened metal wheels, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

Club offerings



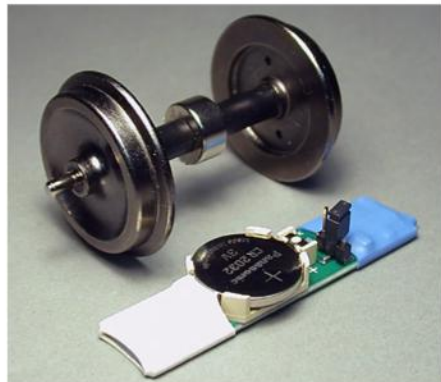
- **New England Milling American Car & Foundry 4,650-cubic-foot-capacity three-bay Center Flow covered hopper.** Atlas HO scale Master Line model custom-decorated for the Nashua Valley Model Railroad Association. One road number. \$37.95 each plus \$7 shipping. Massachusetts residents add 6.25 percent sales tax (\$2.47 per car). Send check payable to NVRRA, Suite E2015, 2 Shaker Rd., Shirley, MA 01464. Credit card orders call 978-225-0650.

Z scale structures



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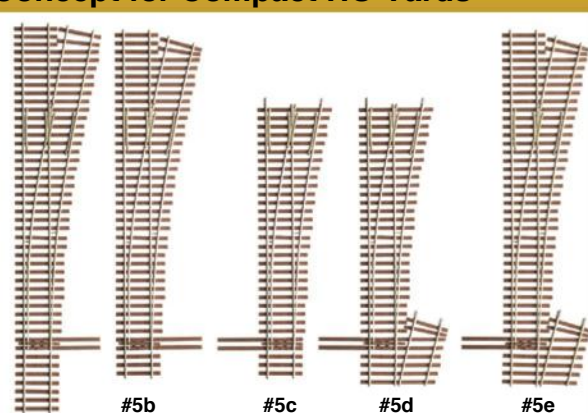


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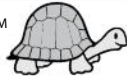
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• **Canadian Pacific National Steel Car and Trinity covered hoppers.**

HO scale, \$8.25; N scale, \$6.75. Microscale Industries, 714-593-1422, www.microscale.com 

In Memoriam

Flemming Örneholm, 1934-2017

Flemming Örneholm, 83, of Vanløse, Denmark, died on Sept. 30, 2017. Three versions of his HO scale Eaglecreek & Northern Ry. were featured in *Model Railroader* magazine. The first appeared in July 2005; the second was the cover story in October 2006; and the final version, also a cover story, ran in February 2012.



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Model Railroader January 2018

What's a Soo Line car doing in San Diego?

Q While traveling to San Diego, I came across this rail car. Can you tell me why it's in San Diego?

Trent Kohl, Delafield, Wis.

A As the lettering on the side indicates, that's a privately owned rail car. Private companies and wealthy hobbyists buy and refurbish rail cars like these and pay the railroads to haul them around the country.

This particular car was built in 1921 as a business car for the president of the Soo Line. It was later bought and refurbished by the San Diego Trust & Savings Co., which renamed it in honor of the founder of the Atchison, Topeka & Santa Fe. It's now owned by Kennebec Financial Corp., which is also based in San Diego and owned by the founders of San Diego Trust & Savings.



This business car, spotted by a reader in San Diego, is a long way from Soo Line rails. Not to mention, the Soo Line merged into the Canadian Pacific in 1990. Trent Kohl photo

The car can still be seen roaming the rails behind an Amtrak train now and then. Modeling a privately owned car is a great excuse for builders of modern-day model railroads who want to run vintage varnish.

Q On my new N scale layout, there will be a copper mine. I have a question regarding the inbound and outbound traffic for such an industry. Sure, there are ore car empties in, loads out. There

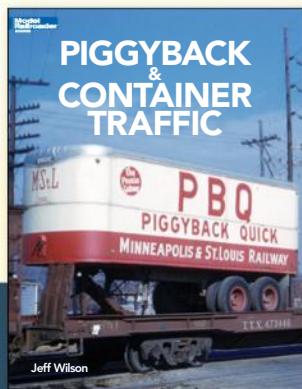
will be a powerhouse on site. Is it possible to use the empty ore cars to deliver coal to the powerhouse to avoid empty car traffic? What else does a copper mine need to operate?

Michael Buehrer, Schaffhausen, Switzerland

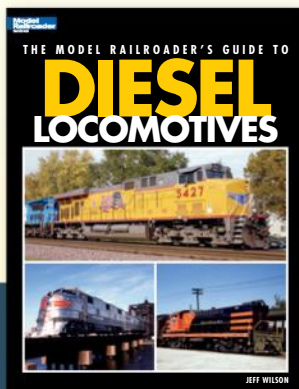
A My colleague Brian Schmidt over at *Trains* magazine knows of at least one

Prototype Books for MODEL RAILROADERS

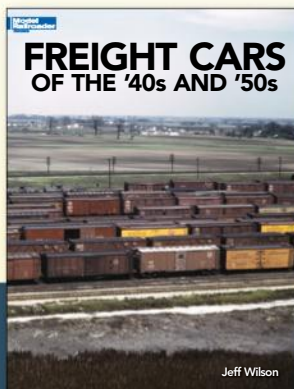
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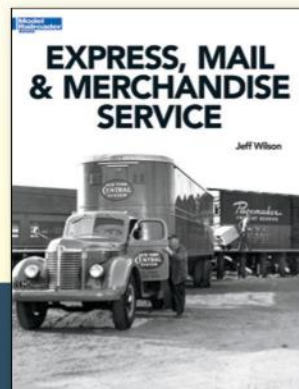
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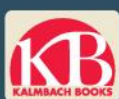
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operation that used the same cars for both coal and iron ore, so it's conceivable your copper mine might do the same. But the catch is that the cars have to be cleaned out in between loads to prevent contamination. It would be up to the mine owner (you) whether that extra step and expense is worth it. Would your mine train crew get more operational interest out of a separate coal delivery, or from shifting ore cars to a clean-out track to sit for a time before being moved to the ore tippie for loading?

As for other traffic, mines would occasionally receive shipments of mining equipment to replace worn-out gear; this might come in a once-weekly boxcar, or if it's a large piece of equipment, under a tarp on a flatcar or gondola.

Also, mines need workers. If your mine is in a remote location, miles from any settlement, the railroad might add a passenger car to its mine run to bring in the daily crew, then take them home when the shift is done. If this car is a combine, mining equipment could be shipped in the baggage compartment.

Q How far apart should streetlights be placed on my layout? I model in N scale.

William Semanko, no city given

A Street light placement depends on many factors, including the width of the road, the height and brightness of the lights, how far out over the road the light extends, and the class of road. Furthermore, guidelines vary from state to state. So the accurate but unsatisfying answer is, whatever looks right to you.

But if you want a rule of thumb to go by, stagger your streetlights on opposite sides of the road, and place one about every three times the height of the streetlight apart. So for a light that's 25 scale feet high, place one every 75 scale feet (that's $5\frac{5}{8}$ " in N scale, or just over $10\frac{3}{8}$ " apart in HO scale). For a shorter, ornamental lamppost that might be 15 scale feet high, place one every 45 scale feet ($3\frac{3}{8}$ " in N scale, or about $6\frac{1}{8}$ " in HO). That should be close enough to prototype practice that no traffic engineer who happens to be on your operating crew will give you a hard time.

READER TIP

Delayed uncoupling solved

Even though trouble with delayed uncoupling of HO scale Kadee couplers is fairly infrequent, I've found that it happens most often when one of the couplers is on a locomotive. It occurred to me that this may be because the couplers on locomotives are mounted in molded-on draft gear boxes, not Kadee's own, and thus are pushed to the side less by uncoupling magnets.

So I replaced all the couplers on my locomotives with long-shank couplers. The improvement was immediate and dramatic.

Some will be bothered by the less prototypical appearance of the longer shank. But I think reliability beats realism. So, you decide: Better looking or better working? – *Jean C. Piquette, Portsmouth, R.I.*

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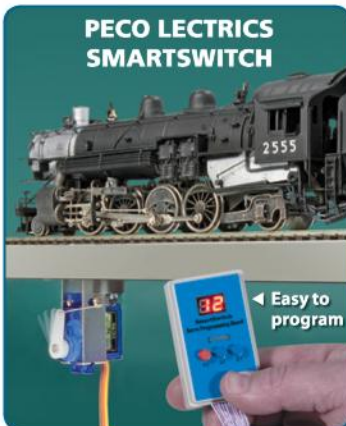
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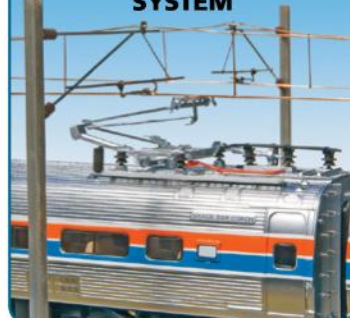
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Q What signs were used to alert the engineer running on dual-gauge track that it was about to change to single gauge? Also, did the engineer rely on sight or knowledge to know the gauge beyond the sign, or was that information included? Thank you!

Richard Rustad, Aiken, S.C.

A Running a train is nothing like driving a truck, where a driver might be given a destination and left to himself to figure out the best route to get there. No engineer would be sent out blind, not already knowing what his route was going to be and what the track would be like when he got there. What's more, no dispatcher would send a train onto a track where the gauge was in question. Such information would be contained in the railroad's employee timetable.

If a train is to venture onto dual-gauge track, the safe clearance points would be clearly marked for trainmen of both railroads to see, and the employee timetable would warn the engineer to expect and look for such markers.

Now, as far as we can tell, there was no special sign for the transition of dual gauge track to single gauge – because no train ever crossed from track of one gauge to another. So the end of dual-gauge track would be marked just like the end of single track, depending on your railroad's engineering standards.

Q I very much enjoy your track plan drawings. Not only are they works of art, but the program used to create them would be most helpful in preparing my own custom layout design. Where can I buy this program?

Randall Steffan, Billings, Mont.

A Our staff artists use Adobe Illustrator to draw the track plans we publish. Though it's a great program for drawing track plans that look like works of art, it would not be very useful as a track-planning tool. As far as Illustrator knows, a track plan is just a collection of shapes and images; it has no provisions for joining track elements, tracking elevations, etc. For a look at programs that

would be better suited for designing track plans from scratch, check out my article, "Guide to track-planning software," in our November 2009 issue.

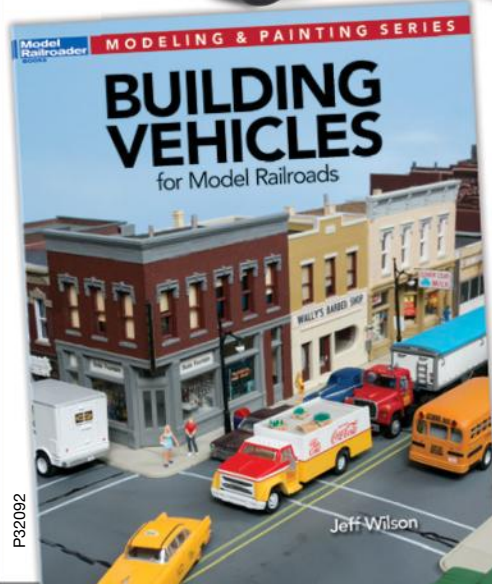
Q I recently bought two Walthers Cornerstone HO scale ore dock kits. I was wondering if the kits could support the weight of 36 ore cars loaded with hematite sand (which is heavy) simulating taconite pellets?

Eric Wiese, Michigan

A Considering that a string of 36 HO scale ore cars will stretch that weight over a span of about 12 feet, the structure should have no problem supporting the weight, assuming it's securely glued together and affixed firmly to the underlying benchwork/terrain. I would be more concerned with the locomotive power needed to shove those loaded cars up the steep ramp of the ore dock, as well as how top-heavy the loaded cars will be on curves and grades. Anyway, that sounds like a fun project; let us know how it turns out.

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Q When modern diesel locomotives are mu'd in a consist, is there any rationale to which way the trailing locomotives are oriented as either cab forward or cab reversed?

Willis Weigand, Georgetown, Texas

A Which way the individual locomotives face in a multiple-unit consist is a matter of convenience for the train crew. Usually, multiple units will be oriented facing forward, so if the lead unit breaks down and has to be removed from the consist, the next locomotive in line will be facing the right way to take over lead engine duties.

However, there may be reasons that one unit – usually the last one – might need to be facing the other way. If the crew is to return with its train, but the destination doesn't have a turntable, wye, or other means to easily turn an engine, the rear unit will be oriented facing backward so it can become the lead unit on the return trip. Likewise, if a train is a local, having one of the units facing backward can improve the crew's



A pair of BNSF Ry. diesels double-teams an intermodal train on Johnson's Curve, west of Coram, Montana, in October 2009. Having the trailing unit facing backward may be useful to the train crew once it arrives at its destination. Frank Keller photo

visibility during switching maneuvers. I can also imagine a backward-facing locomotive would be convenient if a train has to split into two at a junction point and head in different directions, as some passenger trains used to do. These are just some of the reasons an engine

might be pointed backward in a multi-unit consist, but if there isn't a reason for your particular train to do so, orient your locomotives facing forward.

Send questions and tips to associate editor Steven Otte at AskMR@MRmag.com.

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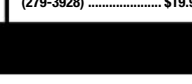
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An N scale loading ramp for Bakersfield

In 1979, Jim FitzGerald, remembered fondly by many of us N scalers as Mr. Ntrak, introduced me to the Tehachapi Loop and its environs, and my model railroading fate was sealed forever.

I wrote a remembrance of Jim in the May 2014 *Model Railroader* for my N Scale Insight column. You can read it at www.modelrailroader.com, along with the rest of these columns. (They're all under the "How-To" heading in the topics listed across the top of the page.)

A year or two after being introduced to Tehachapi, Jim and I were back at the Santa Fe yard in Bakersfield. This time I was loaded with about a dozen rolls of film and the intent to photograph everything in sight as reference material for designing and building my layout.

Naturally, as it turned out, I didn't take enough photos, but then in those days, we almost never did. Film and developing weren't cheap and one had to be a bit choosy.

This was the pre-digital camera era. Digital cameras have become quite an aid to our modeling. When in doubt, just shoot it and sort it

all out later. So often the mundane subjects are just the ones we need for modeling.

The Bakersfield yardmaster in the early 1980s, Ken Hatfield, was showing Jim and me around. Among the many interesting things we saw was a loading ramp made from an 89-foot flatcar.

Ken was justifiably proud of this creation, pointing out that when equipment hits it a little too hard, which is bound to happen sooner or later, "It just shoves the ramp back a little and we go in with a front-end loader and put it back." This, he pointed out, was a lot more economical than spending thousands of dollars to build a concrete or wood ramp that would inevitably get torn up.

Railroads have always been known for their resourcefulness, and this was one more example. The earliest tank cars were tubs mounted on flatcars. Phased-out boxcars have been used for storage, yard offices, and even stations, although usually just temporarily. Even the boilers from steam locomotives were sometimes recycled for stationary use at canning factories or small power plants.

Building the ramp. The hardest part of this project might be sacrificing a Micro-Trains 89-foot flatcar. These are gorgeous pieces of rolling stock and not exactly inexpensive. Maybe you can pick one up cheap at a swap meet, or maybe you'll get "lucky" like I did and damage one beyond repair.

On the bright side, you can save one truck as a spare to use on another car. You'll need one truck for this project, but it can be one that was broken or replaced because it caused derailments.



In the 1980s the Santa Fe's Bakersfield yard used a down-and-dirty ramp to handle local piggyback service. Jim Kelly used a Micro-Trains 89-foot American Car & Foundry flatcar to represent the prototype. Follow along to copy this simple project. Roen Kelly photos

My first concern was bending the flatcar without breaking it. Step one was separating the metal frame from the plastic deck.

Then I filed a notch in the center sill 26 scale feet back from the end of the car. You want to allow enough distance for the tractor backing the trailer to level off before moving out onto the flatcar. As you can see in 1, my notch is a lot bigger than it need have been.

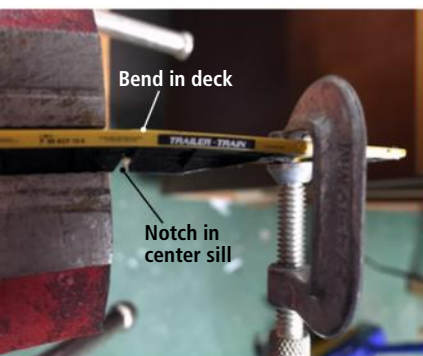
I bent the frame in my bench vise by trial-and-error, taking it back and forth to the layout a few times to check it out. I glued the frame and deck back together with Walther's Goo. First I spread a thin layer on each of the surfaces to be joined, let the Goo set for several minutes, then clamped the parts together in my

vise. I used a miniature C-clamp to secure the short deck section beyond the bend. All that was left to do was attach the truck and glue the wheels to the track. I used a cyanoacrylate adhesive (CA) gel for those jobs.

A bit of history. I like projects like this because they freeze a blip in history on our layouts. My Bakersfield yard is set in 1985, during a time when the railroad industry

was rapidly transitioning from the boxcar era to the intermodal period we're in now.

Trailers on flatcars (TOFC) would soon be overtaken by containers on flatcars (COFC). Circus-style loading ramps like this would be gone, just as the icing platforms once served by the same tracks used for this improvised ramp. 



1 Glue it up. Jim clamped the main portion of the car together in his bench vise and used a small hobby C-clamp to secure the short end. Note the notch Jim filed in the car's center sill.



WHEN IN DOUBT, JUST SHOOT IT AND SORT IT ALL OUT LATER. SO OFTEN, THE MUNDANE SUBJECTS ARE JUST THE ONES WE NEED FOR MODELING. - JIM

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How to tune up a freight car

Before a freight car enters service, it should be given a tune-up to make sure its wheels are in gauge, the couplers are at the correct height, and the car meets the National Model Railroad Association's recommended weight. Bill Zuback photos

Whether you're new to model railroading or have been at it for a long time, going to the hobby shop and buying a new freight car is exciting. However, before that freight car turns a wheel on your layout, it should be given a check-up to make sure it operates smoothly and reliably.

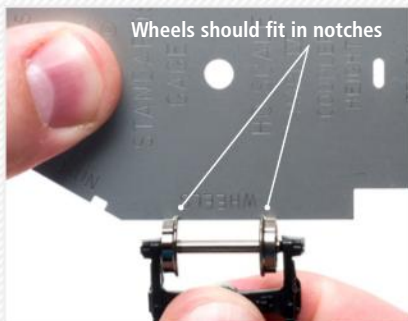
There are plenty of potential trouble spots on freight cars. Wheels that are out

of gauge can cause short circuits, mismatched couplers may uncouple while the train is rolling around the layout, an underweight car is bound to wobble down the tracks, and low-hanging trip pins may snag on a crossing or uncoupling magnet.

Of course, these problems typically rear their heads at inopportune times, such as an operating session or open

house. Following the steps in this article will reduce the potential frustration and embarrassment caused by faulty freight cars. After your car has been in service for a while, periodic inspections – the frequency determined by how often you operate your model railroad – will keep your freight cars in tip-top shape and provide you operational enjoyment for many years to come.

STEP 1 WHEELS AND TRUCKS



Most of today's HO scale freight cars feature metal wheels, and this Athearn HO scale Ready-to-Roll boxcar is no exception. First, I used a National Model Railroad Association (NMRA) Standards Gauge to make sure the wheels were in gauge. I set the flanges



into the notches labeled WHEELS, as shown at left.

If the wheels are too wide or too narrow, they'll need to be adjusted (this isn't possible if the wheelset is molded as a one-piece plastic casting). In some cases you can grip the axle and

twist the wheels into gauge with your fingers. If a hand adjustment won't work, specialized wheel pullers are available from Micro-Mark (no. 82392) and NorthWest Short Line (no. 45-4).

Once the wheels are in gauge, give each axle a spin. There should be no detectable wobble in the wheels. If you notice a wobble or the wheel doesn't run true, get rid of it and put in a new wheelset.

In my experience, metal wheelsets (metal wheels on insulated metal axles) tend to be the best performers. Metal wheels on plastic axles are OK. However, if the wheels are pushed onto the axle too hard, it may distort the plastic. Plastic wheelsets are the most prone to wobbling. Since the

STEP 1 WHEELS AND TRUCKS (CONT'D)

Reboxx Exxact Socket, no. T-100



wheels and axles are one piece, there's nothing you can do fix gauge issues.

Today's trucks are better than ever. Not only is there a wide variety available for freight and passenger cars, almost all trucks have well-defined details and in a few cases even have separate parts.

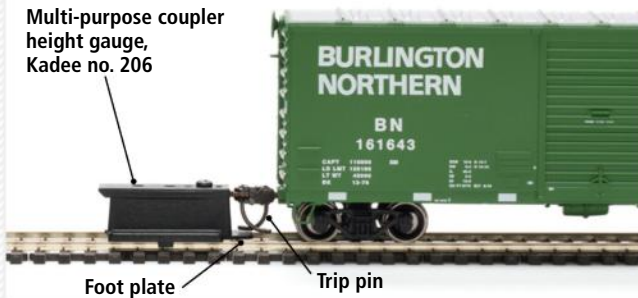
However, it's still a good idea to check for flash (excess plastic that oozes out of the mold). If you notice

the wheels don't roll freely, it's likely one of two problems: the sockets are too shallow for the axle or there's flash in the sockets.

One tool will solve both problems. The Reboxx Exxact Socket (no. T-100) is a hand-operated tool that reams the sockets to the correct angle, allowing the wheels to roll freely. Micro-Mark offers a similar tool called the Truck Tuner (no. 82838).

STEP 2 COUPLERS

Multi-purpose coupler height gauge, Kadee no. 206



The first thing to check on couplers, regardless of the brand, is the height. Couplers at mismatched heights are prone to uncoupling. I used a Kadee insulated multi-purpose coupler height gauge (no. 206) to check the couplers on the Athearn boxcar. As you can see, the coupler is at the same height as the one on the test gauge, and the trip pin clears the foot plate.

.015" fiber washer, Kadee no. 208



If the coupler height isn't an exact match, there are a few ways to fix the problem. Small adjustments can be made with Kadee fiber washers. Number 209 (gray) is .010" thick, and no. 208 (red) is .015" thick, as shown above.

It's best to use only one washer per bolster. Two or more washers may elevate the car to a non-prototypical ride height or cause it to rock side to side.



Underset shank

Centerset shank

Overset shank

Sometimes washers aren't enough to solve coupler height mismatches. In those situations, try using underset- or overset-shank couplers. The names are derived from where the coupler shank meets the head. A traditional centerset-shank coupler is shown above for comparison.

Washers and specialty couplers can be used alone or in tandem. I used .015"-thick fiber washers and underset-shank couplers to remedy a coupler height mismatch issue on a Varney gondola, as seen on page 27 of the July 2017 *Model Railroader*.

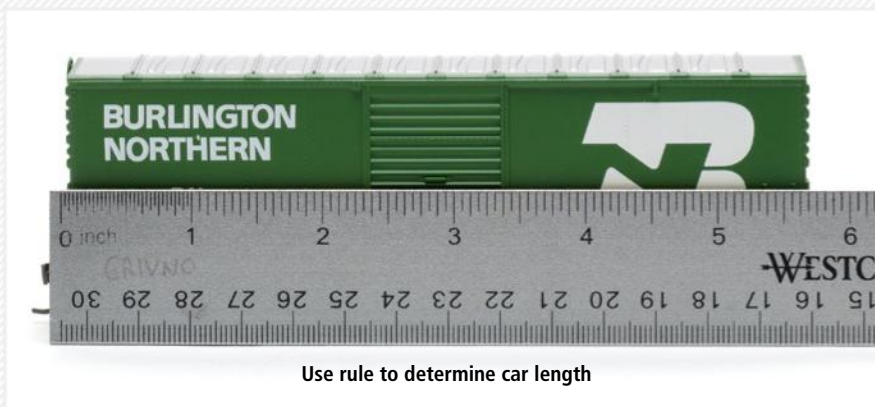


Trip pin pliers, Kadee no. 237

If a coupler has a low trip pin, it can snag on uncoupling magnets, grade crossings, and turnouts, which may damage the coupler or cause the car to derail. To remedy this, Kadee sells trip pin pliers (no. 237), as shown in the photo above. The pliers have a curved jaw for making kink-free bends.

The pliers can also be used to fix trip pins that are too high. This is problematic on layouts that rely on between-the-rails magnets to uncouple cars. The trip pin should be $\frac{1}{32}$ " above the railhead in HO scale.

STEP 3 WEIGHT AND TRUCKS



Use rule to determine car length

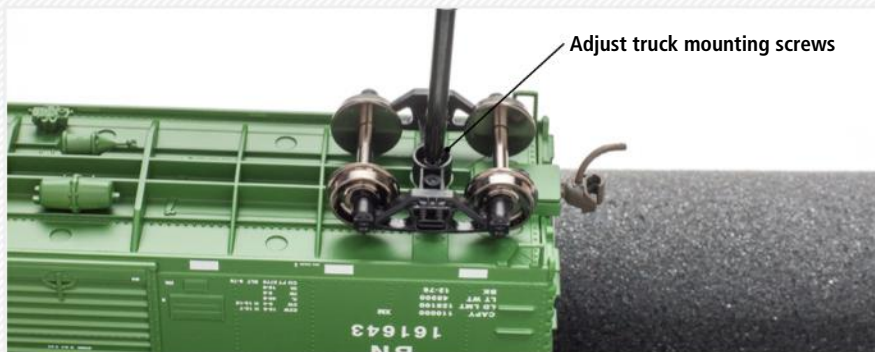
National Model Railroad Association (www.nmra.org) Recommended Practice (RP) 20.1 covers car weight. In HO scale, the recommendation is an initial weight of 1 ounce plus ½ ounce of additional weight per inch of carbody length.

The Athearn 40-foot boxcar measures 51 1/16" (5.6875 as a decimal). To determine the boxcar's recommended weight, I multiplied 5.6875 x .5, which gave me 2.8. Then I added 1, which equaled 3.8. The boxcar needed to weigh 3.8 ounces.



Stick-on weight, Woodland Scenics P378

To bring the car to its NMRA recommended weight, I used peel-and-stick weights from Woodland Scenics. The lead-free weights (no. P378) are designed for Pinewood Derby cars, but work well for model railroading. After marking the center of the steel weight, I attached the Woodland Scenics weights.



Adjust truck mounting screws

I concluded by adjusting the truck mounting screws. I tightened one screw so the truck rotated freely. I left the other screw looser so the truck had some lateral and longitudinal play. If the car wobbles, tighten the looser screw.

The goal of any model railroad is to have derailment-free operations. These easy-to-follow techniques will get your freight cars out of the box and off to a smooth-running start. **MR**



Kitchen scale

Next, I weighed the car using a digital kitchen scale (a postal scale would also work). Straight from the package, the boxcar weighed 3.5 ounces. Per NMRA RP-20.1, the model was .3 ounce too light.



With the extra weight added, I put the shell on the underframe and weighed the boxcar. At 3.8 ounces, the model meets NMRA RP-20.1.

Recommended car weights

(NMRA Recommended Practice 20.1)

Scale	Initial weight (ounces)		Additional weight (ounces per inch)
O	5	+	1
On3	1 1/2	+	3/4
S	2	+	1/2
HO	1	+	1/2
N	1/2	+	.15

Note: The recommended weight is the combined total of the initial weight plus the additional weight calculation (ounces per inch x the car length).

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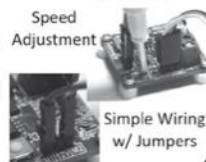
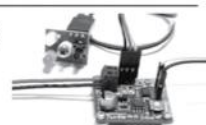
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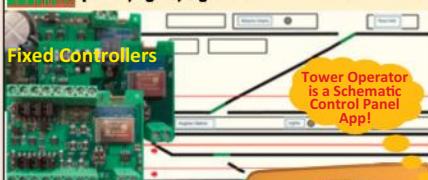
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Holiday Product Guide

A new life for the Texas & Pacific



This renowned HO scale model railroad is now the heart of a public museum display

By Weldon Nash

Photos by Harold Blair



A model railroad seldom survives the passing of its owner, since he's the primary designer and builder of the layout. In most cases, the

owner leaves years of personal enjoyment and work behind, but unless other family members have participated in building the layout, there's seldom anyone left with the knowledge or interest to keep it operating.

The cost of dismantling and selling a large model railroad is difficult to rationalize because it normally has to be removed from a family home. Thus, the most expedient approach is usually to save and sell the individual models and trains, but scrap the layout. This means all of the modeler's artistic scenery work is lost in the process.

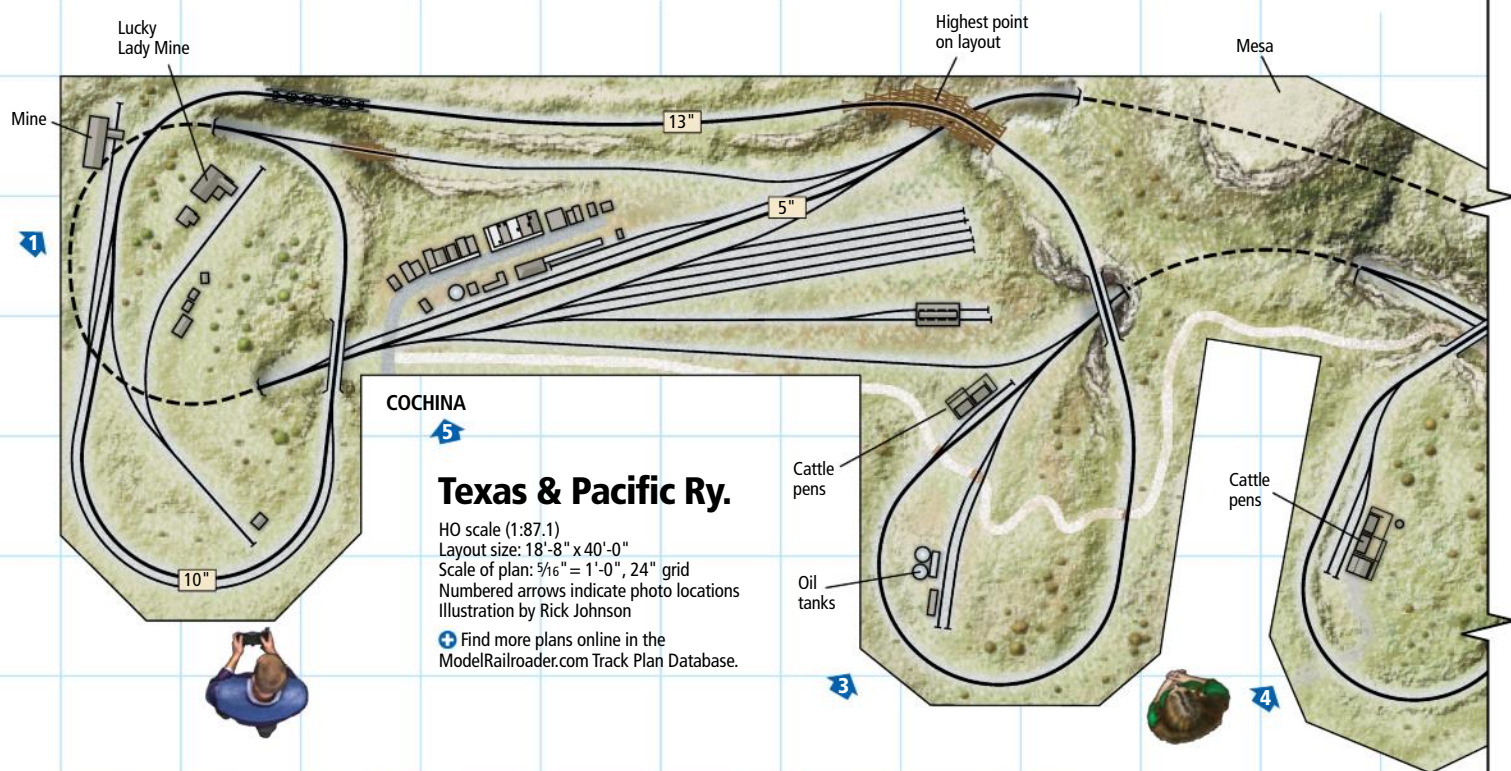
This article relates an unusual approach to this problem in which a beautifully crafted model railroad, the HO scale Texas & Pacific, was given a new life after its owner had passed away.

A 25-year project

The layout involved in this project is an extensive HO scale model railroad built in Fort Worth, Texas, by two close friends, R.D. Moses and Jack Luck, who have both passed on. Over a period of 25 years, they created a large 14 x 48-foot layout that depicted the Texas & Pacific Ry. as it appeared in rural west Texas during the 1950s.

Since there are few basements in Texas, the layout was housed in a building in the Moses family's backyard.

1 An Electro-Motive Division F7 tops the summit at the scratchbuilt Lucky Lady Mine on the R.D. Moses Texas & Pacific Model Railroad. The HO scale layout is now part of the Jefferson County Historical Society & Museum in northeastern Texas.



2 This view shows the T&P inside the depot, complete with a new backdrop painted by local artist Terry Ward. Club members have also converted the layout to Digital Command Control.



The layout is housed inside a building reminiscent of a vintage T&P depot, complete with a replica of a 1957 schedule board. The 22 x 55-foot structure provides plenty of room for visitors.

and textures of the real thing, as do their hundreds of scratchbuilt mesquite trees.

The layout also includes dozens of highly detailed models of mines, villages, oil wells, cow towns, and ranches. The dirt ranch roads are so realistic that I almost expected to see the dust rising from behind the pickup trucks. Scale figures populate every building and scene.

Planning for the future

Prior to his passing in 2009, R.D. established and endowed a family trust to ensure that his T&P Ry. would continue. He stipulated that the model railroad be donated to a worthy, non-profit organization that would continue to maintain and operate the layout for years to come.

After several months of considering proposals from organizations based as far away as New York and California, the Moses Family Trust chose Jefferson, a small, historic town in northeast Texas, as the new home for the layout. Located 15 miles north of the Marshall exits off Interstate 20, Jefferson has a rich railroad history.

The layout at a glance

Name: Texas & Pacific
Scale: HO (1:87.1)
Size: 18'-8" x 40'-0"
Prototype: Texas & Pacific
Locale: rural west Texas
Era: 1950 to 1960
Style: linear walkaround

Mainline run: 193 feet
Minimum radius: 24"
Minimum turnout: no. 6
Maximum grade: 3 percent
Benchwork: open grid
Height: 45" to 54"
Roadbed: cork over plywood

Track: Atlas flextrack
Scenery: Hydrocal over aluminum screen
Backdrop: hand painted
Control: Digitrax DCC



The Jefferson & Cypress Bayou Model Train Club played a key role in getting the model railroad to Jefferson. Club founders Norman Buell and Roy Richie approached the Jefferson Historical Society with a suggestion that if the museum acquired the layout, the club would commit to operating and maintaining it. In July 2011, the museum accepted the donation of the R.D. Moses T&P Model Railroad.

Moving the railroad

The first step after acquisition was to pack and move the model railroad from its original location. Moving a building-size layout without damaging the scenery proved to be quite a feat. Displays

Fine Art Services, a company that specializes in moving large museum art, was hired to perform the move.

The firm's proposal included dividing and crating the railroad into two sections. Next, each section had to be lifted over the Moses' home and placed on waiting flatbed trucks. The railroad was then temporarily moved into a climate-controlled warehouse in Fort Worth until arrangements could be made to move it to a similar warehouse in Jefferson in September 2011.

In the meantime, the Jefferson Historical Society and Museum built a replica of an early 1900s T&P depot on

the museum property to house and display the layout. Depot construction began in January 2012 and was completed by early May 2012. The building is a simple wood depot with board-and-batten siding and bracketed eaves. It's approximately 22 x 55 feet to accommodate the layout and provide comfortable walking aisles for visitors.

Bring on the trains

On April 16, 2012, the model railroad arrived on site in its two huge crates on an air-ride flatbed tractor trailer. The final installation in the new depot was almost as

exciting as the initial move. After almost 8 hours of effort, the crated layout was in its final position in the new building. Then the plywood crating was carefully removed to reveal the entire layout for the first time in 7 months. Amazingly, all of the scenery and buildings remained intact and undamaged. Even the tiny kite was still flying at the miner's camp!

At this point, the Jefferson & Cypress Bayou Club took over, with 30 days to reconnect the layout halves, carefully clean the scenery, tune up the track, and make sure everything was operational before the grand opening on May 19, 2012, for the inaugural Jefferson Train Days.

While the club members were busy getting the layout operational, a talented local artist named Terry Ward painted a new scenic backdrop around the layout. At the same time, club members installed and painted the new fascia and bead-board skirting to finish off the front of the layout.

The Grand Opening and Jefferson Train Days event was successful, with more than 500 visitors stopping in to see the trains running on this fabulous piece of craftsmanship. In addition, at least 30 Moses family members were in attendance.

Unanimous support

Throughout this project, the museum and the train club have received an amazing amount of community support. Jefferson's population is only about 2,000, yet



③ An eastbound freight rolls past oil field storage tanks and loading tracks outside of Cochina. The scene is indicative of how well R.D. Moses and Jack Luck captured the wide-open look of west Texas in the 1950s.



④ It wouldn't be west Texas without cattle and cowboys. At the layout's midpoint, a T&P GP7 leads a peddler freight around the cattle loading pens.



⑤ Steam meets diesel at the Frontier Days celebration in Cochina, Texas. The layout continues to be enjoyed by about 200 visitors a month.

the museum received more than \$90,000 in donations from local citizens and philanthropic organizations to cover the costs of building the depot and moving the model railroad. In addition, local building contractors and other residents donated labor and materials to help complete the depot project. Since the opening, an average of

200 visitors per month visit the R.D. Moses Texas & Pacific Model Railroad.

Club members remain busy staffing the depot. Led by club secretary Jeremy Peeler, they also converted the T & P layout to Digital Command Control (DCC). Member David Sinclair donated a new Digitrax DCC system and was also

a major donor to the depot's building fund.

Visitors welcome!

The Jefferson Historical Society & Museum and the Jefferson & Cypress Bayou Model Train Club welcome everyone to visit Jefferson and the R.D. Moses T & P Model Railroad. The

exhibit is open daily. For more information on the town, the museum hours, and other information, go to visitjeffersontexas.com and jeffersonmuseum.com. **MR**

Weldon Nash is a member of the Jefferson & Cypress Bayou Model Railroad Club. This is his first article for Model Railroader.



The Safety-Kleen facility outside Daneburg is one of two rail-served industries on contributing editor Pelle Søeborg's layout. The oil-recycling business is based on a prototype he photographed in Grand Island, Neb.



Scratchbuild a **COMPACT INDUSTRY**

This prototypical oil-recycling plant will fit
on most modern layouts

By **Pelle K. Søeborg** • Photos by the author

ONE OF THE THINGS on my to-do list for a research trip to the American Midwest was to find a small, modern, rail-served business I could model on my layout. This turned out to be harder than I expected.

Although I found several small businesses that used to be rail-served, the rails looked like they hadn't been used for decades. Many times, the track wasn't connected to the main line anymore.

Then in Grand Island, Neb., I got lucky: A small Safety-Kleen facility that was still served by rail. Safety-Kleen is an oil recycling business, and the one in Grand Island receives a tank car or two at a time. It was perfect for my needs.

The complex consists of an office connected to a small storage building. At the other end of the property there's a storage tank complex and a covered truck loading rack. Even though the prototype is small, I still had to compress my version to make it fit the available space on my layout.

Construction

The most difficult part to build was actually the smallest structure of them all, a portable loading platform. Its tiny size and my diminishing eyesight wasn't the most ideal combination, and it took me the better part of a day to build it. The other structures weren't complicated to build.

The easiest part was the storage tanks, which came from a Walther's Fuel Distributor kit. This kit included a shed with a loading rack, which I modified to make look more like the one at the prototype industry.

Most of the main structure had to be scratchbuilt. It was a relatively uncomplicated project, though, thanks to Evergreen styrene and my well-stocked scrap box.

I used styrene for the entire structure, except for handrails and the thin vertical pipes on the tanks, which I made of brass. Styrene is my favorite material for scratchbuilding. It's easy to cut and glue, and you can get strips in almost any dimension and shape. There are also a variety of plain and textured sheets available to suit most needs.

For gluing styrene I use Tamiya Extra Thin Cement. You simply hold the parts together and apply the cement along the joint with a brush. The cement will flow into the joint, leaving almost no visible traces. For gluing metal to styrene, I use cyanoacrylate adhesive (CA). I prefer the gel type.

Realistic painting

What really makes a structure come to life and appear authentic has a lot to do with the painting and weathering. I mixed almost all the shades used to paint the various parts of the industry. Be aware that a color looks darker on a bigger surface, so you almost always need to mix a lighter shade than you think. Colors can also look very different under a layout's artificial light than they



This trackside view of the facility shows the storage tanks and the etched-metal fence surrounding the property. The business can handle two tank cars at a time.

do under sunlight, so you have to adjust for that. The colors even look slightly different under my workbench light compared to how they look under the layout's fluorescent lamps. Test your colors on a sheet of scrap styrene before you paint the structure.

Unfortunately, I can't give you exact mixing ratios for my colors, as I mix them by eye, often directly in the airbrush cup. Even if I could give you the exact ratios I used, there's no guarantee the colors will look the same under your layout lighting.

You need a neutral base for the colors. I gave everything a coat of Vallejo no. 73-601 Surface Primer, a light gray acrylic primer that covers well and dries quickly. Acrylic primers are more sensitive to grease than enamel primers, so it's important that you clean all parts thoroughly before applying the primer. I wash the parts gently in hot water with a little dishwashing detergent added to it. I blow as much water off as possible with my airbrush and put the parts aside to dry. I cover them with plastic bags to protect them from dust.

Assembly and installation tips

I learned an important lesson from building the cement plant for my previous layout: Make each section in sub-assemblies that can be painted separately. I didn't do that on the cement plant, which made the masking and painting part of the job complicated and time-consuming. On this project, I built each structure in several sub-assemblies, so painting them different colors required a minimum of masking. This complicates construction, but in the end it saves time.

The prototype has tinted windows, so I made a tinted window sheet by applying automobile window tint film to a sheet of clear styrene. Some air bubbles formed under the film when I applied it, but in most cases I could eliminate them by poking tiny holes in the film with the tip of a hobby knife and squeezing out the trapped air.

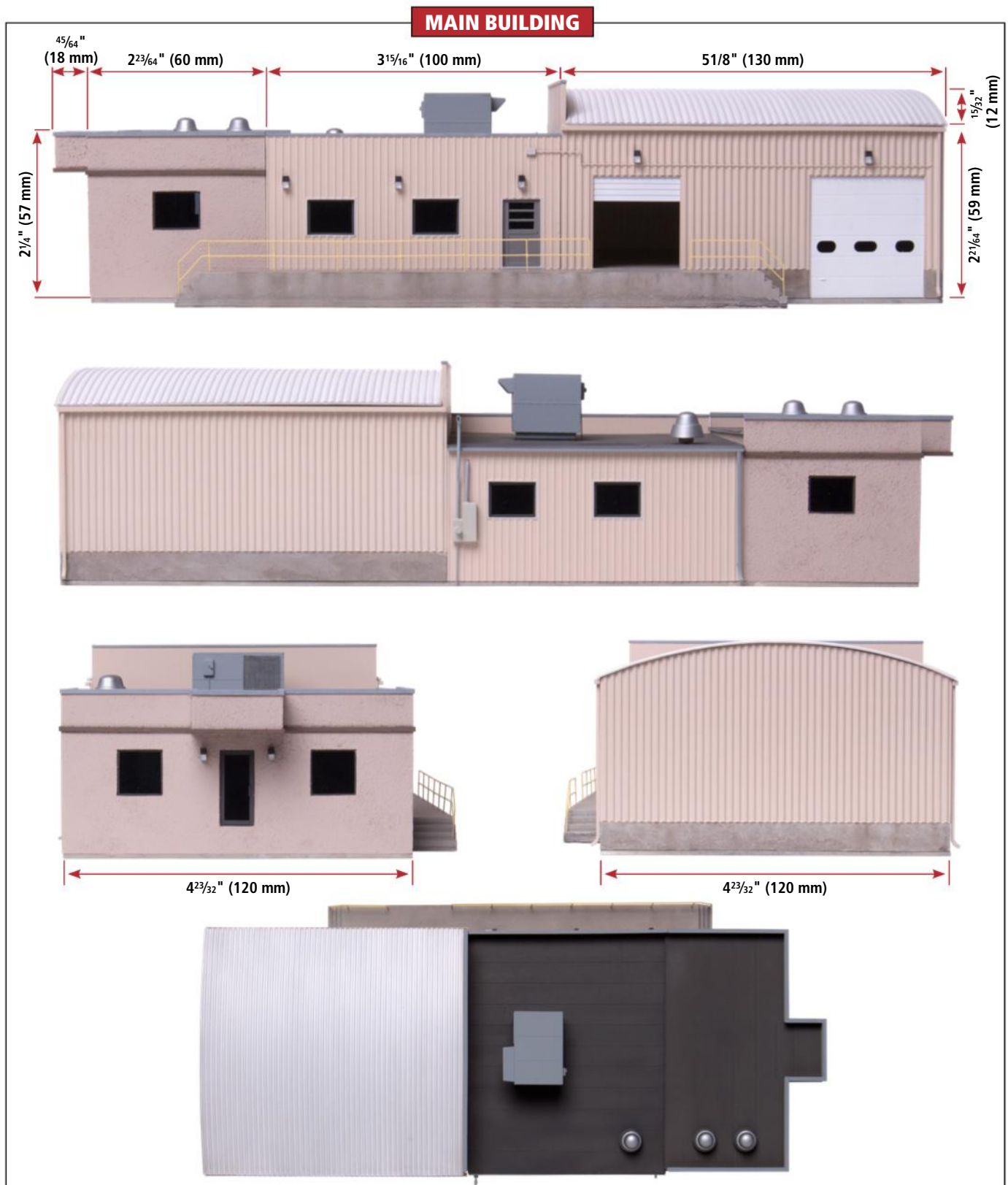
Installing the structure on my layout went quickly, as I'd already prepared the concrete loading/unloading area and applied scenery materials. I put up an etched brass security fence from Micron Art, which I airbrushed gray, to protect the facility from trespassers. Many modelers paint their security fences silver, but in the real world a chain link fence is silver only for a short time. Galvanized metal will, over the years, turn flat gray. Old fences often have rust, also.

All that's left now is to pray that someone will make a small Safety-Kleen tank truck like the one I photographed at the prototype, or at least a set of decals so I can decorate my own.



This overall view shows the orientation of the structures and track. The industry is small enough to fit on most layouts, but large enough to warrant rail service.

Part 1 THE OFFICE/WAREHOUSE

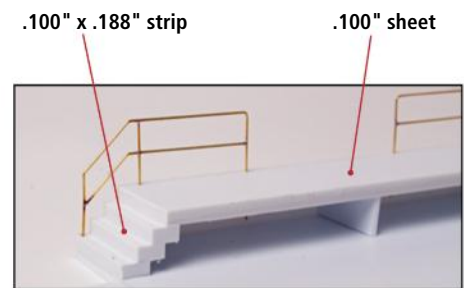
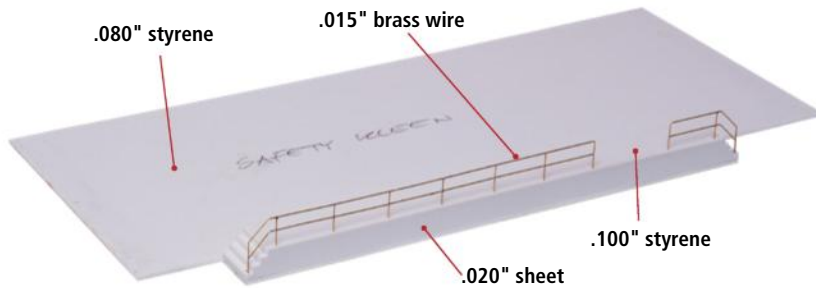


The main building is made up of three distinct sections: A front office/reception area with stucco walls, a back office with corrugated metal walls and a flat roof, and a

corrugated metal warehouse with a taller arched roof. I built the three sections separately and joined them on a one-piece styrene foundation to simulate concrete.

Part 1 THE OFFICE/WAREHOUSE (CONT'D)

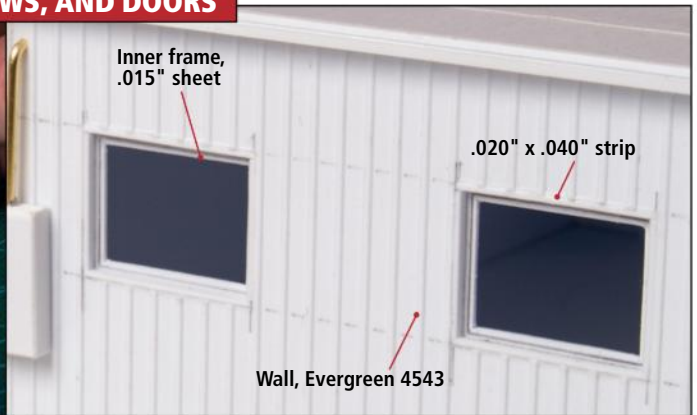
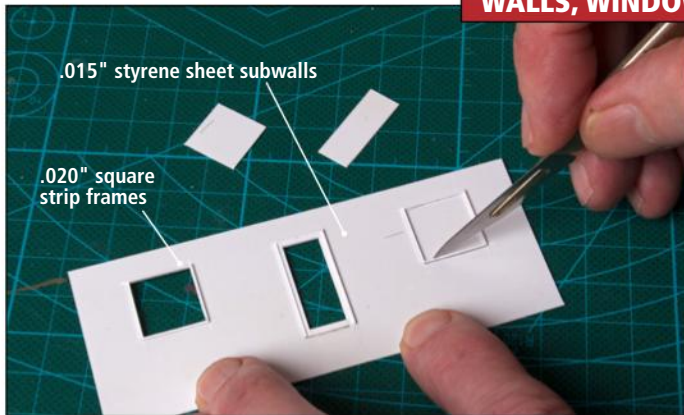
FOUNDATION



The foundation for the office and storage buildings is a sheet of .080" styrene. The platform was also made of styrene sheet, and the handrails are .015" brass wire soldered together. After the glue had dried, I sanded all the joints

smooth to make it look like a single piece of concrete. The back view of the platform shows how the steps were assembled from .100" x .188" styrene strip. The platform was faced with a sheet of .020" styrene.

WALLS, WINDOWS, AND DOORS



To make window and door frames for the stucco-walled front office, I first marked the openings with a pencil on .015" styrene sheet. I made outer frames by gluing .020" x .020" strip styrene to the outside of the marks, then cut out the openings with a hobby knife. Finally, I cut

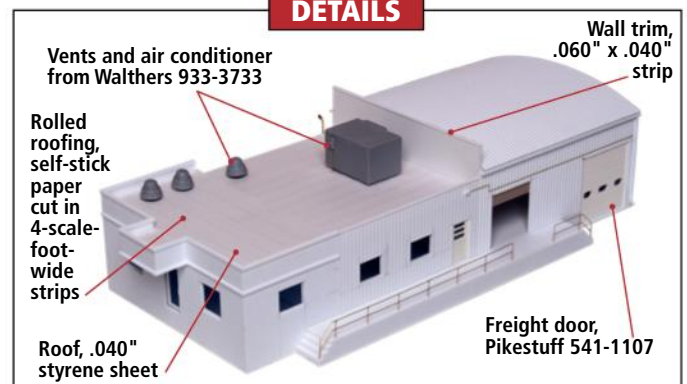
openings in the walls and installed these frames from the back. On the metal-sided office, I first cut out window openings in the siding, then glued .020" x .040" strip styrene frames inside the openings. The inner frames were made by cutting window openings out of .015" styrene.

ARCHED ROOF



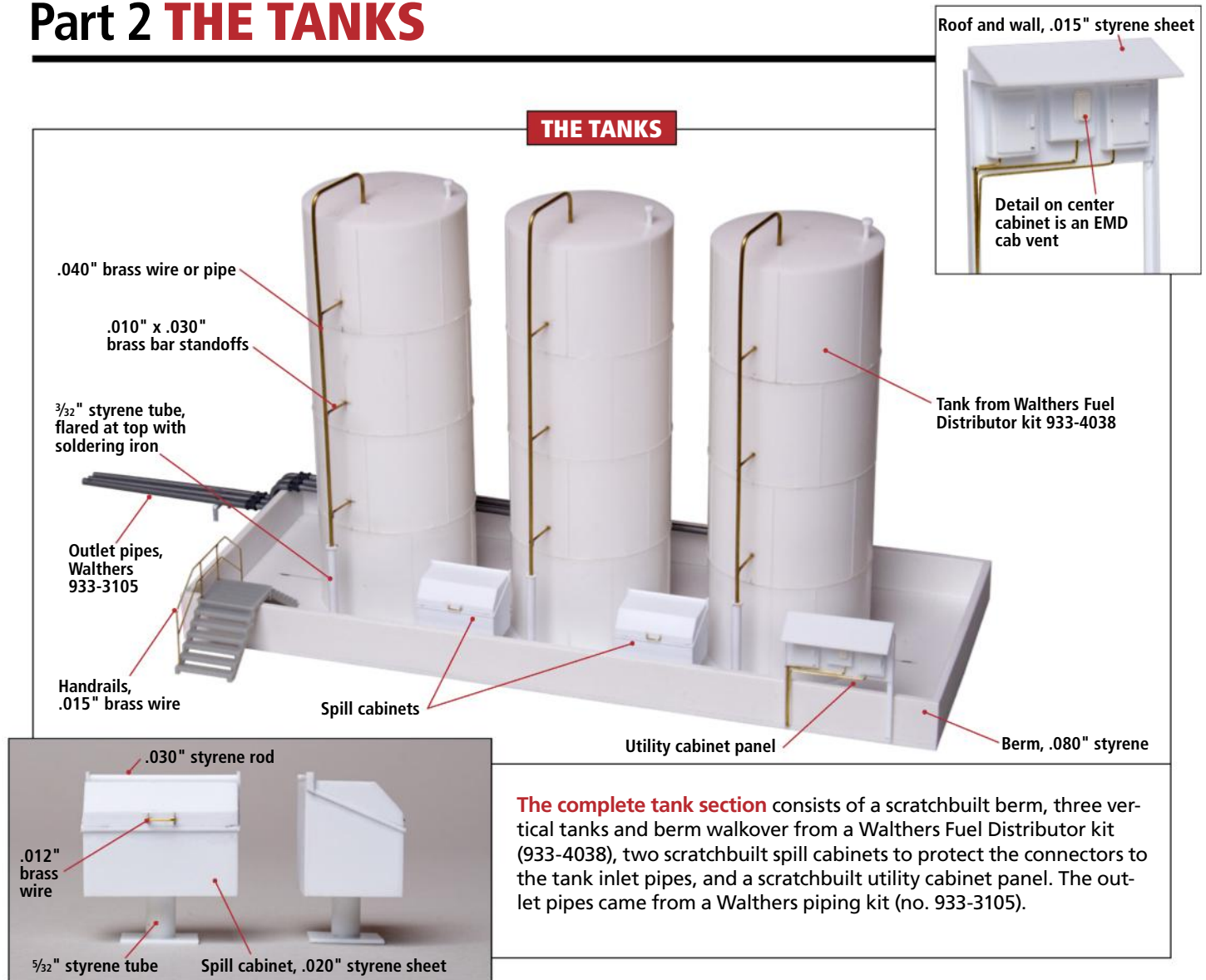
The arched roof on the warehouse was made from Evergreen metal siding. The roof holds its shape thanks to three trusses cut from .060" styrene. The edge was reinforced with .100" x .188" styrene strip.

DETAILS



I found some details for the structure in my scrap box, while others came from a Walther's roof detail kit (no. 933-3733). I covered the roof in rolled roofing I cut from self-adhesive paper, then later painted it gray.

Part 2 THE TANKS

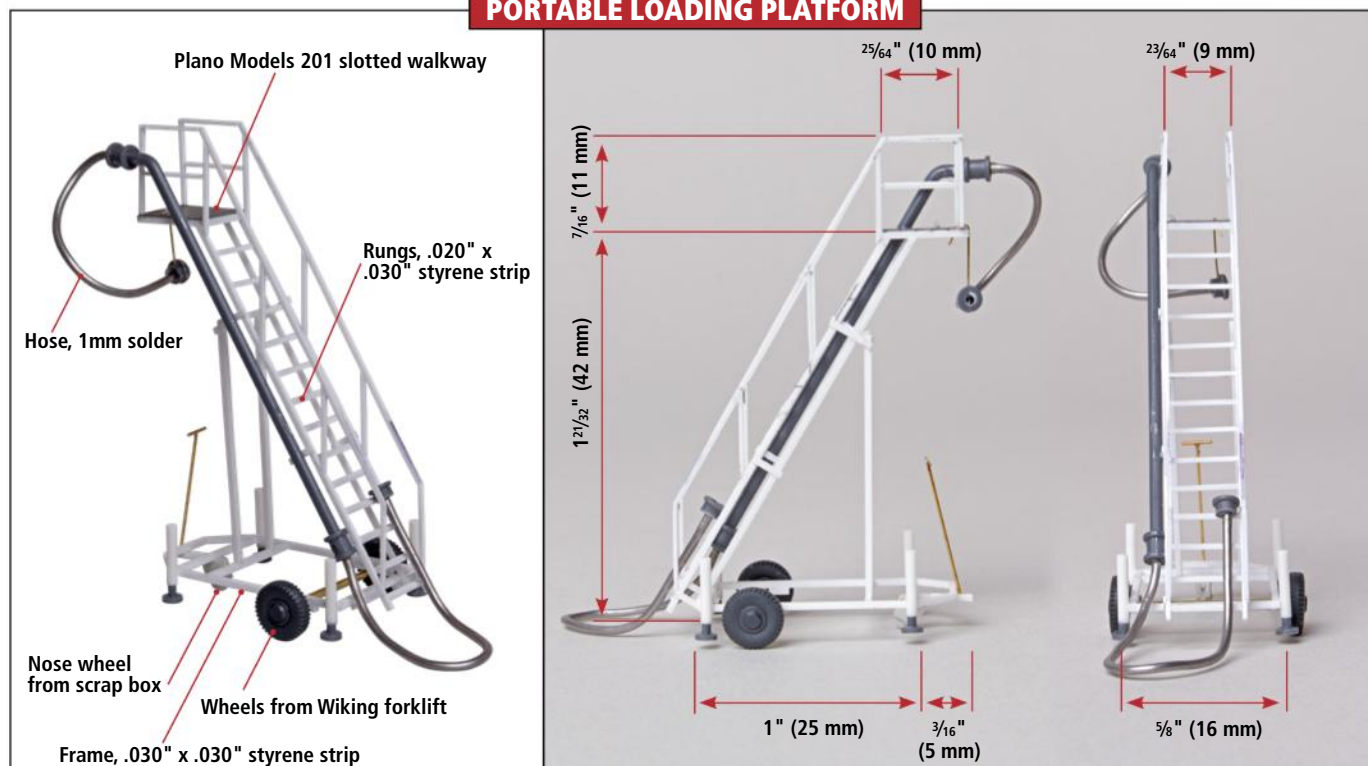


Part 3 LOADING PLATFORMS



Part 3 **LOADING PLATFORMS (CONT'D)**

PORTABLE LOADING PLATFORM



The portable loading platform, used to transfer oil from tank car to truck, was one of the most involved parts to build. Styrene and brass stock and some parts salvaged from other kits completed the build.

Part 4 **PAINTING AND FINISHING**

PAINTING CONCRETE

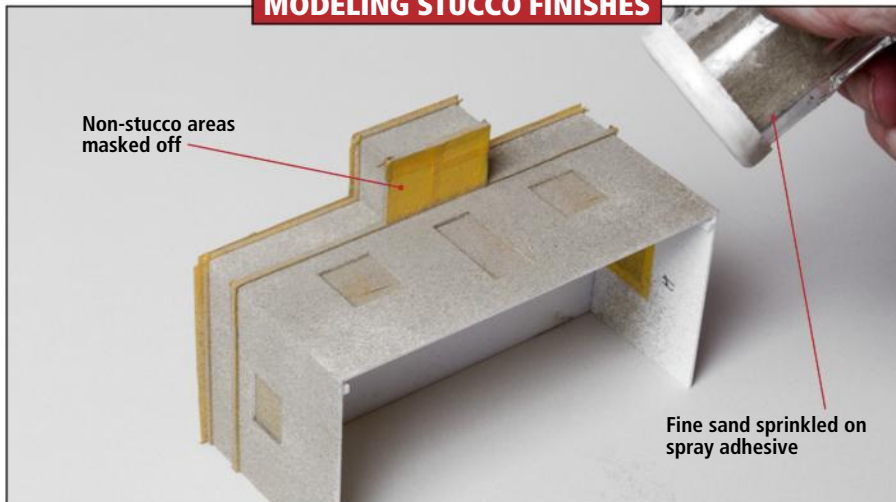


Re-creating the look of concrete realistically can be a challenge. I use several shades of gray to achieve a realistic look. I first gave the berm a base coat of Tamiya AS-2 Light Gray. I then dabbed the sides and bottom randomly with two shades of gray – a custom-mixed warm gray (Model Master Flat Gull Gray with some Model Master Sand

added) and Light Gray. When the paint had dried, I gave the surface a dark wash (a few drops of Vallejo Air 71052 German Gray mixed with water and rubbing alcohol). I applied black and brown powdered chalks to make streaks of dirt on the vertical surfaces. Finally, I sealed everything with a coat of Vallejo Matte Varnish.

Part 4 PAINTING AND FINISHING (CONT'D)

MODELING STUCCO FINISHES



I first masked the areas without stucco with masking tape, then sprayed the walls with 3M Spray Mount. I then sprinkled very fine sand on the tacky adhesive. After an hour's drying time, I brushed off all the loose sand. I then painted the walls with a mix of Model Master White, Tan, and Skin Tone Dark.

PAINTING IN SECTIONS



Tanks, Vallejo Premium White 62.001

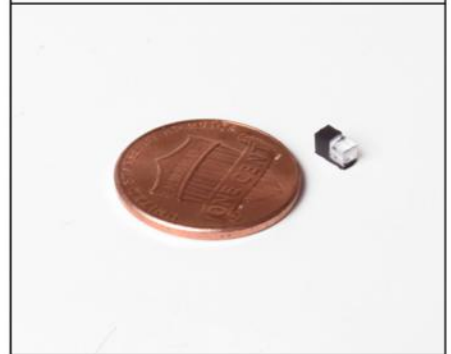


Floor, Light Ghost Gray with weathering wash



Instead of assembling each structure before I painted it, I built them in sub-assemblies based on the color they would be painted to minimize masking. Unless noted, all paints are Testors Model Master acrylics.

OUTDOOR LIGHT FIXTURES



I filled a .080" wide trough-shaped mold I made from styrene strips with "Magic Water," a two-part resin product from Unreal Details. I let it cure for 24 hours before pulling it out of the mold and cutting it into .080" cubes.

I then built lamp housings from Evergreen .100" styrene angle with .040" x .080" styrene strip glued on top. I painted the housings black and glued the clear pieces to them with Micro Kristal Klear. These lamps are non-working, but it wouldn't be too much trouble to drill a small hole in the back and glue in a surface-mount light-emitting diode. 



GOING SOUTH

The Winston-Salem Southbound Tar Branch is a compact HO scale urban switching layout packed with operation

By Eric White

Photos by Bill Zuback

A GP9 WITH FIVE CARS and a caboose in tow picks its way through the weeds. You can almost hear the cicadas singing and feel the perspiration run down the back of your neck on a still, hot summer day in North Carolina.

It's 1957 on the Winston-Salem Southbound, and this Electro-Motive Division diesel has only been on the property since spring. The railroad is busy serving its regular customers and delivering material for a new project, the construction of Interstate 40.

This is the scene on *Model Railroader's* 2018 Winston-Salem

Southbound Tar Branch project layout. The 2'-9" x 8'-2" switching layout is an all-star collaborative effort between the MR staff, Model Railroader Video Plus, MR contributing editor Tony Koester, and MRVP contributing editor Gerry Leone.

Model Railroader Video Plus is a subscriber video service. But select videos from the Southbound series are now available free on www.MRVideoPlus.com. David Popp, MRVP producer, designed the layout after being inspired by photographs in the David P. Morgan Memorial Library here at Kalmbach Publishing.



① A Winston-Salem Southbound GP9 spots cars on the Liberty Street Annex on our 2018 project layout.

SOUTHBOUND

David described the full-size railroad in “Modeling a busy shortline terminal,” a story in *Model Railroad Planning 2017*. He gave a short description of this layout in “Building the Southbound” in MRP 2017. Now, we’re bringing the full story to *Model Railroader*.

A track plan for the Southbound

While the photos may have inspired David to model the Southbound, as we’ve been calling it around the office, it was a book, *The Winston-Salem Southbound Railway* by Jeff Miller and

Jim Vaughn (Jeff Miller, 1996), that offered a track map and the inspiration for David’s track plan. On the map, David found the Tar Branch, which led west from the WSS main in South Winston-Salem, then north and back into Winston-Salem proper.

At the end of the branch was a concentration of track serving several distributors, the railroad’s main office and freight house, an ice house, a team track, and a spur for unloading materials for construction of the highway.

David used the track map to create a temporary mock-up using Kam-Konnect

The Tar Branch series

January: Going Southbound; meet *Model Railroader*’s Winston-Salem Southbound layout

February: Benchwork and track

March: Structures

April: Backdrop, lighting, and scenery



The Tar Branch

HO scale (1:87.1)

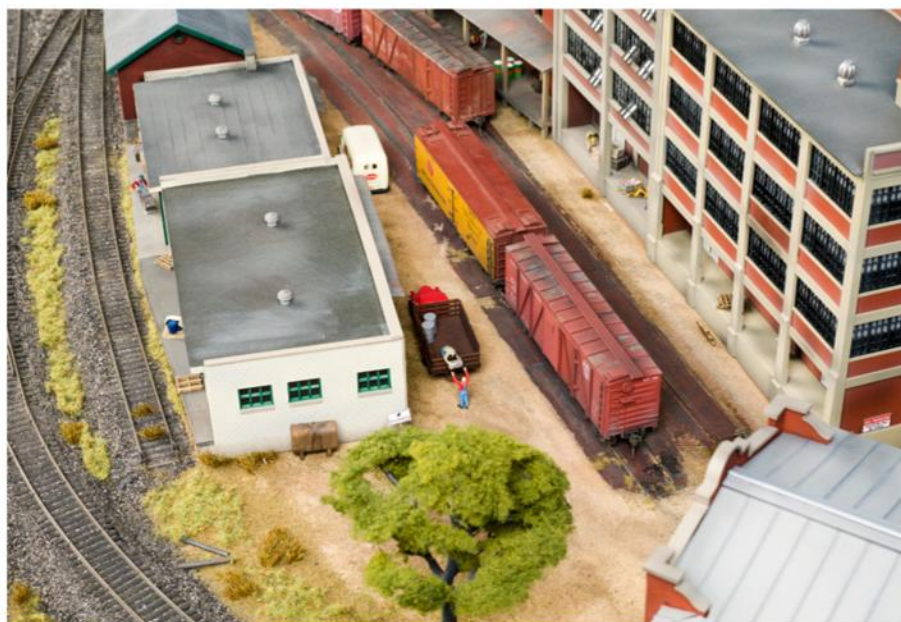
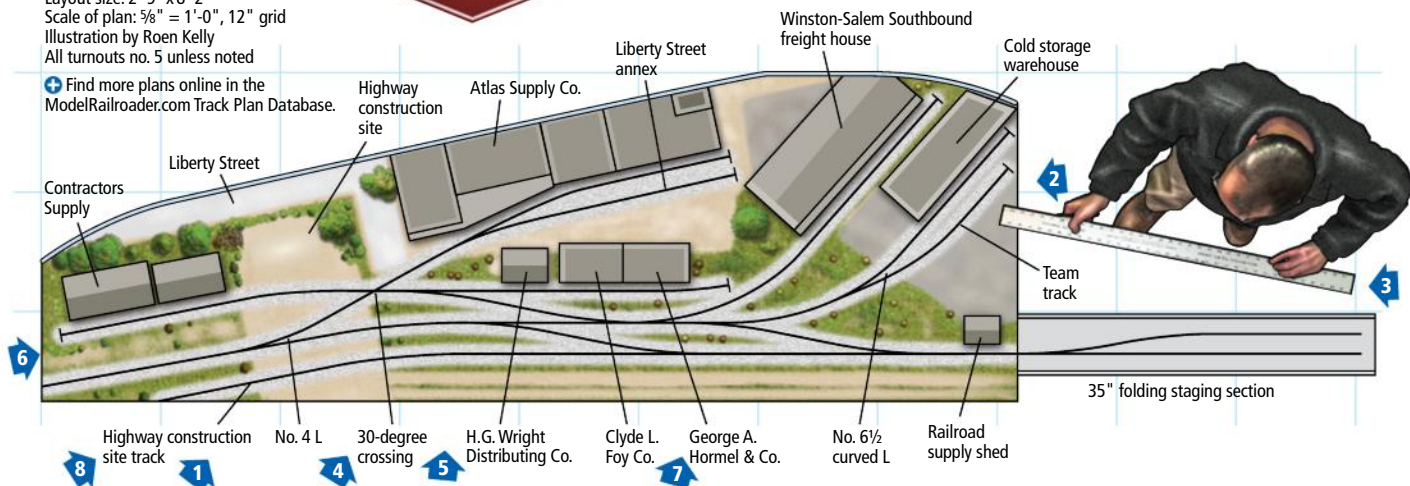
Layout size: 2'-9" x 8'-2"

Scale of plan: 3/8" = 1'-0", 12" grid

Illustration by Roen Kelly

All turnouts no. 5 unless noted

Find more plans online in the ModelRailroader.com Track Plan Database.



② Gerry Leone stopped by the *Model Railroader* offices to lend a hand detailing the Tar Branch. One of the mini-scenes he created is this pair of workers unloading a stake bed truck behind the Hormel warehouse.

layout tables. He scrounged under the staff's Milwaukee, Racine & Troy layout to come up with some stand-in structures, and found some leftover pieces of track in the workshop to flesh things out.

His goal was to see if a reasonable facsimile of the Tar Branch could be built in an 8-foot-long area. Once he found it feasible, he put his ideas down on paper.

For staging trains, David added a 35"-long folding section with two tracks to the right side of the 8'-2"-long layout. Trains enter the layout from staging and go into a passing siding that allows the locomotive to run around its train in order to work the two facing-point sidings. The rest of the spurs are trailing-point turnouts that require switchback

moves to serve the customers, keeping operation interesting.

The largest business on the layout is the Atlas Supply Co. It anchors the center of the model railroad, and is served by two tracks carrying loads of plumbing, heating, and mill supplies.

In front of Atlas are a row of three smaller businesses: the H.G. Wright Distributing Co., the Clyde L. Foy Co., and the George A. Hormel & Co. warehouse. Wright was Winston-Salem's exclusive Miller Beer (among other brews) distributor; Foy was a food broker; and Hormel, of course, was a meat distributor.

To the right of Atlas Supply is the WSS freight house. This two-story brick building also housed the railroad's main

The layout at a glance

Name: The Tar Branch

Size: 2'-9" x 8'-2"

Prototype: Winston-Salem Southbound Ry.

Location: Winston-Salem, N.C.

Era: mid-to-late 1950s

Style: shelf

Minimum radius: 20"

Minimum turnout: no. 4

Maximum grade: none

Benchwork: L-girder

Height: 46"

Roadbed: milled Homasote on 1/2" plywood

Track: handlaid code 83

Scenery: Sculptamold on extruded-foam insulation board and plywood

Backdrop: building photographs with handpainted cloud sky

Control: NCE Digital Command Control

offices on its second floor. Adjacent to the freight house is the Southbound's cold storage building. Beyond that is a team track that was part of a small yard on the full-size railroad.

And benchwork to hold it up

Like all of our project railroads, this one rolls on casters. The layout is long and narrow, so David used L-girder construction for a solid foundation.

In addition to being well-suited to the layout's design, using L-girders also allowed David to explain the virtues of the system in an MRVP video. One of the points made early in the video series is the flexibility available with the cross



joists. One of the joists was in a location needed for a switch machine. Since the joists are screwed in from below, it was a simple matter to unscrew it and move it over a couple inches. We'll have more about the benchwork in February.

The joists also support a curving backdrop, made of tempered hardboard. The backdrop's curve helps make it self-supporting, and also helps better frame the scene on the layout. Additionally, it supports a quartet of halogen spotlights and a lighting valance. The lights were on sale at a local home center, and David couldn't pass them up.

Trackwork and second thoughts

The Winston-Salem Southbound was conceived as an MRVP project, so some aspects of it were determined by what techniques the video crew wanted to record. One of those techniques was handlaying turnouts.

Tony Koester has plenty of experience building turnouts, and as he was going to be in the area, it was only natural to get him in front of the camera armed with rail stock, wood ties, files, and a soldering iron.

The track is laid on Homasote road-bed, which is known for its spike-holding ability. This is a prime consideration when handlaying track.

David was so taken with Tony's work that he handlaid most of the rest of the track on the layout. David didn't build all of the turnouts himself, but he reasoned the track between the turnouts wouldn't be too much trouble. It would also allow him to more accurately represent branchline trackage, and it would offer another subject for a video.

Within a few days of Tony heading back home after his visit, David's sessions in the workshop were accompanied by quiet muttering about the wisdom of handlaying track in a limited amount of time and reflections on people who make things look easy.

Taking control

A small layout such as this doesn't need a complex control system, but we still wanted to take advantage of all that modern Digital Command Control has to offer, including sound-equipped locomotives. Therefore, we installed a simple and reliable NCE PowerCab system.

3 The Winston-Salem Southbound's GP9 no. 1501 spots a load of pipe for the Atlas Supply Co. Learn how David Popp built the pipe load in the April 2017 Step by Step column.

The PowerCab's Power Panel is attached to a 16AWG bus wire. This runs from end-to-end of the layout. David dropped 22AWG feeder wires from the track about every 2 feet, then soldered many of the rail connections together to ensure reliability. The feeder wires are attached to the DCC bus with insulation-displacement, or suitcase, connectors.

On turnouts with metal frogs, including Tony's handlaid turnout, David installed Blue Point switch machines. These cable-operated machines include double-pole, double-throw switches to route power to the frogs. In addition to the handlaid turnout, we used turnouts from Walthers, which have metal frogs, and Peco, which are either Insulfrog plastic frog turnouts or Electrofrog metal frog turnouts.

Modeling the Carolina Piedmont

With a switching layout plan, a flat layout surface keeps things simple. Atop



4 A reefer full of Schlitz Beer from Milwaukee arrives at H.G. Wright Distributing for the thirsty folks of Winston-Salem. David kitbashed this row of buildings from DPM Landmark Structures and City Classics kits.

the 1 x 3 joists of the Winston-Salem Southbound is a 1/2" layer of plywood. To create interesting topography on this surface, David added layers of extruded-foam insulation board.

The left-rear corner and front edge, especially from the center to the right, are the high points, such as they are. But even a little elevation change makes things more visually interesting. The foam was carved with serrated knives to a rough shape, then smoothed over with Sculptamold, a papier-mache product.

Most of the ground cover is weeds and gravel. David made extensive use of grass tufts and grass fiber mats to create the weedy areas along the right-of-way (See Step by Step in the February 2017 issue).

Dirt and gravel were reproduced with products such as Real Dirt and crushed stone and ballast from Highball Products.

In addition to dirt and gravel, there's also a section of track that's laid into pavement. To simulate this, David made a stamp using RTV rubber mold-making materials to impress a brick pattern into DAS brand modeling clay. After the clay cured, David painted and weathered the surface to look like brick pavers.

Since this is a small layout, David spent extra time on the trees. In a series of videos on MRVP, he explained how to build "hero" trees. These are more detailed, and time-consuming, so they're not something you're likely to use to cover mountain landscapes.

Even with a more-detailed approach, David did take into consideration the time spent, and he shared some shortcuts in the videos that make use of commercial products to get a great result before leaf-fatigue sets in.

To continue the scene into the distance, a backdrop is attached to the ends of the 1 x 3 joists that rest on the L-girders. It's an example of another aspect of the flexibility of the framing system in that you can cut the lengths of the joists to create a smooth, curving layout edge either on the front or the back.

The only vertical supports are 1 x 3s at the ends and in the center. The center support also carries the halogen lighting David installed. These small fixtures create bright pools of light that mimic sunshine on a partly cloudy day.

The backdrop was painted sky blue, and former Kalmbach illustrator Jay Smith turned his talents loose on the sky to airbrush some clouds based on photos the MRVP staff found online.

Once the sky was painted, David and associate editor Cody Grivno cut out images from SceniKing backdrops to add some background buildings. One landmark structure was missing, though.



While David was researching the Winston-Salem Southbound, he found the Forsyth (N.C.) County Public Library. The library has a digital photo archive (www.digitalforsyth.org) that helped fill in the gaps in the Winston-Salem Southbound book David was using. Photo librarian Molly Rawls was instrumental in finding many of the images David used in his *Model Railroad Planning 2017* article.

She also filled another gap – the spot in the backdrop where the old Salem town hall belonged. On her way to work one day, she stopped to take a few photos of the now re-purposed building. *Model Railroader* senior graphic designer Drew Halverson edited the images to make a print for the backdrop.

If they build it, we will model it

Of course, a backdrop needs something in front of it, and in this case it's a



5 The Atlas Supply Co. is a hive of activity on the Southbound. David Popp kitbashed the structures, and Gerry Leone added the details. The engineer of no. 1501 needs to keep alert amid the bustle.

series of buildings. To model the structures of the Tar Branch, we turned to kitbashing, scratchbuilding, and re-purposing.

David took on the buildings in the center of the layout. The Atlas Supply Co. consists of (appropriately enough) an Atlas Model Railroad Co. Middlesex Manufacturing Co. kit, American Hardware Supply from Walthers, and a City Classics Smallman Street Warehouse kit. The three buildings in front of Atlas Supply are made from City Classics Carnegie Street Manufacturing Building kits and a Woodland Scenics DPM Landmark Structures Freight House kit.

Gerry Leone added much of the detail to the Atlas Supply Co. complex. Besides a myriad of 55-gallon drums, he added figures engaged in their tasks; vehicles, crates, and pallets; and custom-printed decals on the walls of the building.

Ben Lake, MRVP associate editor, took the drawings of the WSS freight house in the Winston-Salem Southbound book and used them to create Adobe Illustrator drawings to make mock-ups before committing the model to styrene.

The architectural details on the freight house are from Shapeways, an online 3-D printer (www.shapeways.com). Ben created the files to make the prints using Blender (www.blender.org), a free downloadable program. Using the 3-D printed parts allowed Ben to accurately model the doors, windows, and moldings on the building.

The cold storage building next to Ben's freight house was my project, scratchbuilt from a single photo and a

plot plan drawing of the city block it sat in. It's built using traditional techniques with a core of plain .040" sheet styrene sheathed in N Scale Architect embossed concrete block sheet.

When David was preparing the story for *Model Railroad Planning 2017*, he gathered high-resolution photographs, including reprints of those in the Southbound book. The high-resolution photo of the cold storage building revealed it was built of brick, not concrete block. Maybe next time I'll get it right. We'll have more in the March issue.

The last structure on the layout is a contractors supply warehouse. David never found a clear photo of the building from our 1957 time frame, so what had started as a stand-in during the mock-up process became a permanent resident. The styrene structure is a kitbashed corrugated metal building David found under the Milwaukee, Racine & Troy.

We believe it was built by Gordon Odegard, as it's similar to other buildings we have that he built. David freshened the building with some new paint and removed a damaged lean-to from one end. If anyone recognizes where this building is from, please let us know!

Railway equipment

A railroad, whether a model or full-sized, needs rolling stock to do its job. The Tar Branch is set in 1957 near the end of the transition era, and it's not the final layout we've built in this time period.

The 2017 project layout, an addition to the Beer Line, was set in 1947, a



6 A boxcar full of building supplies is the last car spotted today on the WSS. Once its work is done, GP9 no. 1501 will couple on to its outbound train on the passing track, then exit the Tar Branch. A new day will bring a new train and more action on the Southbound.

decade earlier, but still reasonably close rolling-stock-wise. The Virginian layout is also from a similar era, so we scavenged some freight cars from both layouts. Reefers that serve the breweries in Milwaukee can also appear in Winston-Salem. Coal hoppers from The Virginian can be used for deliveries to the team track in North Carolina (see the March 2017 Step by Step column).

We also added some specific rolling stock for the layout, such as gondolas loaded with pipe for Atlas Supply (see Step by Step in the April 2017 issue) or materials for the highway project, and a unique covered hopper made from a wooden boxcar to deliver cement to the highway project.

But the signature pieces are the Winston-Salem Southbound GP9 and the wood-sheathed WSS caboose. These were both Cody's projects, and there are a series of videos about both of them.

The GP9 was an Athearn Genesis model decorated for the Burlington Northern. Cody chose this model because it had a number of details that were appropriate for the WSS locomotive he wanted to model. Stripping the Cascade Green and Black from the body shell wasn't one of Cody's favorite things to do, though, as he's a BN fan.

The Southbound book had a few color photos in it, and they included two photos of the road's GP9s in their as-delivered paint schemes. This helped Cody determine the proper gray for the body.

Cody found decals for the locomotive at www.maskislanddecals.com. He combined those decals with stripes he pieced together from a Microscale Erie Lackawanna set.

The caboose is an American Model Builders kit of a Norfolk & Western car. The Southbound was jointly owned by N&W and Atlantic Coast Line, so equipment came from both parents at different times. Construction of this laser-cut wood kit was covered in another series of videos on MRVP.

Operation!

Now that the layout was finished, what do you do with it? Operate it!

David invited Tony back to help set up a car-card-and-waybill system. The cards add a bit of realism to the layout by providing a purpose for all that rolling stock.

It's not just a boxcar, it's Wabash 75693 with a load of plumbing castings for Atlas Supply Co. from the Detroit Casting Corp. by way of Wabash, Detroit & Toledo Shore Line, Chesapeake & Ohio, Norfolk & Western, and Winston-Salem Southbound. When it's empty, it goes back to the Wabash in Detroit.



7 The 1501 pulls a reefer from the WSS cold storage building. You can read about how Cody Grivno painted and detailed the GP9 in the February Step by Step column. In April, you can learn more about how we built the structures on the Southbound.

With a small layout like this, it doesn't take too much time to fill out the waybills, and they help make sense of the layout's roster. There's no need for 50-foot covered hoppers in grain service, for example. However, you might find you need to add a few more reefers to serve the cold storage warehouse, Hormel, and H.G. Wright's beer distributing business.

With a switching layout, the sequence is simple and easily operated by one person. After a train arrives from staging, a look at the waybills will tell you where each car needs to go. Before you do anything else, though, you want to check the car card boxes on the front of the layout to see if there are any empties that need to be pulled.

A little planning at this point will make things go more smoothly during the session. In addition to empties leaving the Tar Branch, there may be cars in the midst of unloading that either need to stay where they are or be returned to their spots. There could also be off-spot cars. These are cars that were brought by a previous train but had nowhere to go, and were left in an out-of-the-way position until their assigned spots opened up.

A great way to introduce folks to operation is to work as a team. The more experienced operator takes the part of the conductor and plans all of



8 Associate editor Eric White uses a switch list as he places a load of coal on the team track with the Southbound's GP9. A small layout like this offers a couple hours of relaxing operation for one or two people.

the moves. The newcomer gets the fun of running the locomotive, and learns why certain things are done a particular way.

With the inbound cars delivered and the outbound cars assembled into a train, it's time to return to staging. Since the staging tracks have room for just seven

40-foot cars, David used wooden boxes to store the cars when they're off the layout. David and MRVP assistant editor Jenny Maaske starred in a video that shows just how much fun this little layout is.

Build your own Southbound



▶ **Not a subscriber yet?**
Click on the free videos page at MRVideoPlus.com to view free episodes of the Winston-Salem Southbound series.

Now that we've whetted your appetite for switching in the South, keep an eye out for more about the Southbound in coming issues. Next month, we'll show you how to build the benchwork, then we'll follow up with more construction stories.

If you can't wait, sign up for Model Railroader Video Plus to see the dozens of videos we made while we built the Tar Branch. Then you can hear those cicadas and feel that Southern humidity as you switch your own layout. See you next month! **MR**

Minnesota's OTTER TAIL VALLEY RR



This 10 x 10 foot N scale track plan features coal, grain, and rural scenery

By Nathan Brett with Cody Grivno

Sometimes we stumble across a modeling subject by accident. While researching another of my interests, conservation of the North American river otter, I learned about the Otter Tail Valley RR (OTVR), a 71-mile short line that operates between Fergus Falls and Moorhead in west-central Minnesota. At the time, I felt nothing more than a slight interest in the OTVR.

A couple months ago, I got the urge to design a new railroad using the skills I acquired building my current one. I wanted my new layout to be set in the modern era. With limited space, I was concerned about the length of modern trains and rolling stock.

Then I remembered the OTVR. The short line had everything I wished for, including a manageable size, coal trains, and interesting scenery, along with a cool name.

From a goat to an otter

The Otter Tail Valley operates on former Burlington Northern (ex-Great Northern) track. At one time this line carried GN's *Empire Builder* passenger train.

Since it started operations in 1986, the Otter Tail Valley has been owned by three companies. Each era provides its own personality. Though the track plan is set between 2008 and 2012, it can be easily be backdated or moved into the present day with slight modifications.

Anacostia & Pacific operated the OTVR from 1986 to 1996. During that time, the railroad had four ex-Norfolk Southern (the pre-1982 company) Electro-Motive Division GP18 diesel locomotives, nos. 181, 189, 192, and 194. The Geeps were originally painted maroon with orange ends. In 1994 the units were painted black and white with the OTVR's sunburst herald.

During the Anacostia & Pacific era, the OTVR operated Monday through Friday between Fergus Falls and Dilworth, and twice weekly from Fergus Falls to Avon. Cars were supplied by Burlington Northern (BN), and OTVR leased three-bay covered hoppers. The railroad also had hand-me-down cabooses from BN and Chicago, South Shore & South Bend.

Coal and grain were the principal commodities during the early days of the OTVR. In addition to freight service, a



Minnesota Northern GP9 no. 1484 is on the point of a solid train of Trinity 4,323-cubic-foot-capacity aluminum longitudinal discharge hoppers at Barnesville Junction. The track at right extends for another 5 miles. On Nathan's track plan, it's used for staging. Jeremiah Rindahl photo



A pair of GP18s in OTVR's original maroon-and-orange scheme bookend cars that were part a short-lived dinner train service that operated on the OTVR. This train, photographed in October 1988, is stopped in front of the ex-Great Northern depot in Alexandria, Minn. Robert Ball photo

short-lived two-car dinner train ran on the line in the late 1980s. The train operated push-pull style with a GP18 on each end.

Approximately 90 percent of OTVR's traffic was between Moorhead and Fergus Falls. In 1991, the railroad abandoned its line from east of Fergus Falls to Avon.

In September 1996 RailAmerica, a shortline conglomerate, purchased the OTVR. The railroad continued its Monday-to-Friday service between Fergus Falls and Moorhead, with additional operations as needed based on customer demand.

The three remaining GP18s (no. 194 was used for parts after its diesel engine froze while on the Minnesota Northern in 1997) traded in their black-and-white paint for RailAmerica's red, silver, and blue scheme in 1998. Numbers 181 and 192 returned to the OTVR, while no. 189 was shipped to another RailAmerica property, the St. Croix Valley RR. Down two locomotives, the OTVR used GP9s from then-sister RailAmerica line Minnesota Northern. In 2011 and 2012,

units from other RailAmerica properties arrived on the OTVR, including a GP35 from Kiamichi; GP40s from Central Oregon & Pacific and Dallas, Garland & Northeastern; and a GP9 from Mid-Michigan RR.

Freight cars were supplied by BNSF Ry. Otter Tail Valley also leased a fleet of covered hoppers exclusively for grain service.

During the RailAmerica era, OTVR handled roughly 10,000 cars per year. Coal for Otter Tail Power Co.'s Hoot Lake Power Plant remained king, but grain was a strong second. Online elevators included Barnesville Farmers Elevator, CHS Inc. in French, Fergus Falls Farmers Elevator, Kragens Elevator at Sabin, and Rothsay Farmers Elevator. The railroad also served Drywall Supply in South Moorhead.

Two new shippers came online during the RailAmerica era. Agassiz Valley Grain opened in 2006, and Green Plains Renewable Energy came online in 2008.

Genesee & Wyoming, a short line holding company, acquired the OTVR in

The railroad at a glance

Name: Otter Tail Valley RR

Owners: Genesee & Wyoming (Oct. 2012 to present), RailAmerica (Sept. 1996 to Sept. 2012), and Anacostia & Pacific (Oct. 1986 to Aug. 1996)

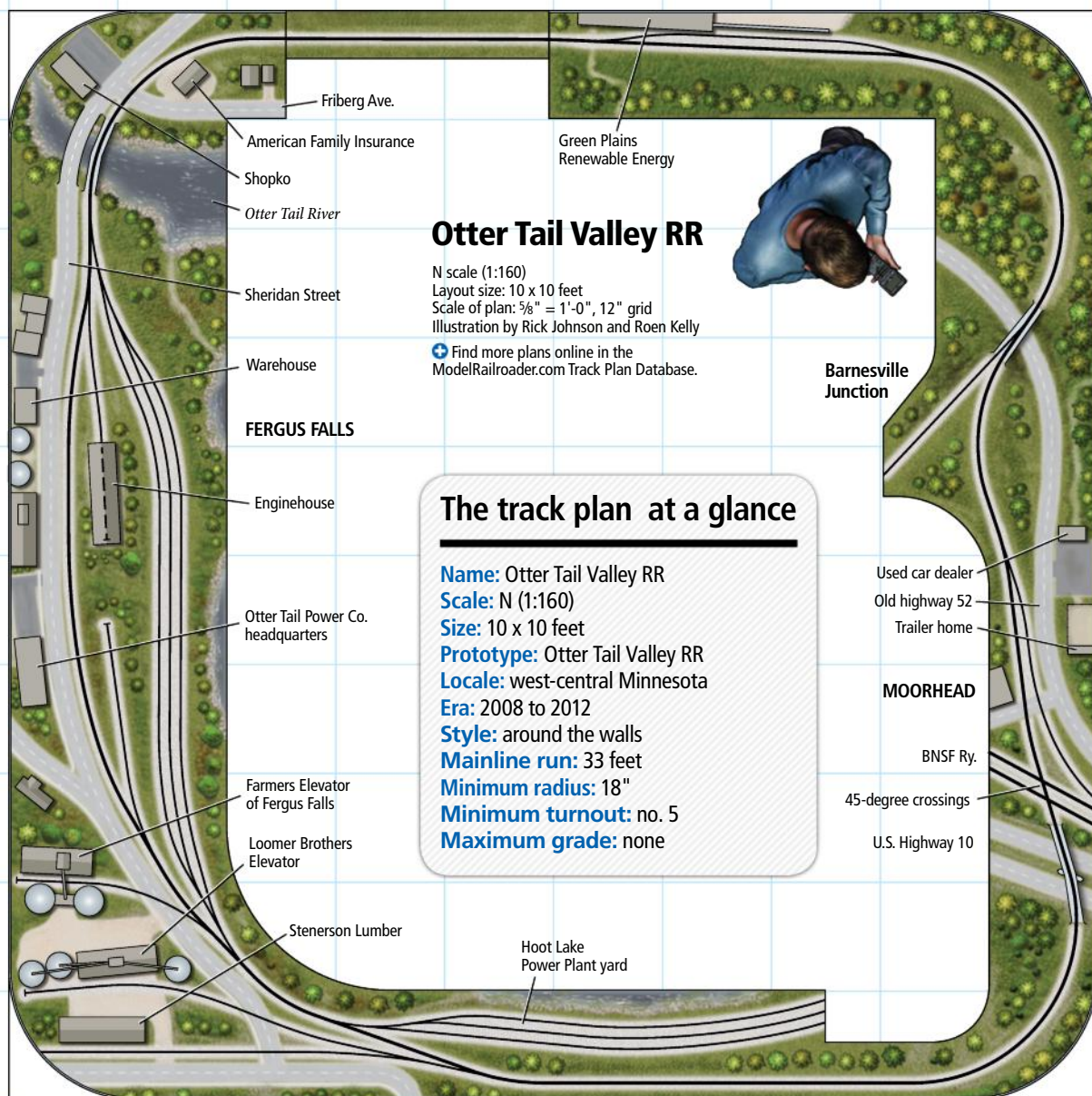
Location: west-central Minnesota, from Moorhead to Fergus Falls (segment east of Fergus Falls to Avon abandoned in 1991)

Length (overall): 71 miles (current), 176 miles (1986)

Length (modeled portion): 54 miles

Profile: single-track short line

Prominent modeled locations: Moorhead, Barnesville, Fergus Falls



October 2012 when it purchased RailAmerica. Initially, OTVR's locomotive fleet carried over from the RailAmerica era. Some of the older units were later shipped to other G&W properties, including the last original OTVR unit, GP18 no. 192, which left in July 2013.

In August 2013, GP40-2WB no. 3034 arrived in Fergus Falls, the first locomotive in G&W orange, black, and yellow paint. In October 2014 it was reassigned to Michigan.

Today, the OTVR operates GP9 1484 and two GP40s, 4016 and 4021. Freight cars are still supplied by BNSF Ry. Other equipment is leased or owned by online customers.

Coal, grain, corn, soybeans, and ethanol are the principal commodities on the OTVR today. Modern BNSF Ry. power can be seen on the point of unit coal trains bound for the Hoot Lake Power Plant and grain shuttles for CHS Inc. in French and Agassiz Valley Grain in Barnesville.

Modeling Minnesota from Florida

Living in Florida, I obviously didn't have easy access to the OTVR. Thanks to

the internet, I was able to research the railroad. One tool that proved invaluable was Google Maps, specifically its Satellite and Street Views. I could virtually follow the OTVR and see the tracks and industries in amazing detail.

When designing the model railroad, I tried to keep the track arrangements and surrounding scenery as faithful to the prototype as possible within the confines of a 10 x 10-foot space. The Fergus Falls section of the layout came together quite naturally, as I didn't have to bend the yard or surrounding industry tracks from their actual arrangement. At the bottom of the plan is the receiving yard for the Otter Tail Power Co.'s Hoot Lake Power Plant.

From Fergus Falls, the main line continues north over the Otter Tail River, heading to the outskirts of Fergus Falls before crossing the doorway on a removable section. The next industry is Green Plains Renewable Energy, a large ethanol plant that's represented with a building flat.

On the prototype, the line heads approximately 30 miles northwest, passing through





Modeling the wide-open farm country OTVR runs through would be easy in N scale. Here, two GP18s and two GP9s lead a loaded coal train at Rothsay, Minn. Andy Cummings photo

small settlements and farm country. I replicated the open-country running with trees and a farm field.

The next stop is Barnesville. I wasn't able to model the yard, but I did include Barnesville Junction. This is where a 5-mile stretch of track splits from the main line and heads north to serve Agassiz Valley Grain and an ammonia plant.

The scenery here is faithful to the prototype, with highway 52 passing under the track at the junction. A small peninsula allows the junction to appear on the proper side of the main.

After passing through Barnesville, the tracks reach Moorhead. The OTVR serves the Moorhead Clay County Area Redevelopment Association Industrial Park.

Moorhead is also where the OTVR enters BNSF Ry. track. The yard where the interchange takes place is in Dilworth, just east of Moorhead.

On my plan, the OTVR crosses U.S. Highway 10 and curves back to make a connection to allow for continuous running. This feature wouldn't be used during operating sessions.

I decided early on that I didn't have room for a separate staging yard. Instead, I use sidings for staging. The siding at Barnesville Junction is used to represent cars destined for the industries on the 5-mile line north of Barnesville. Cars from BNSF Ry. are staged on the interchange track in Moorhead.

This arrangement will require handling of the cars before operating sessions, but on a layout of this size, such a task won't be a burden.

Operations for two

The layout is designed to accommodate two operators. A typical day starts with a pair of Electro-Motive Division GP18s running light to pick up loaded coal hoppers from the BNSF Ry. interchange in Moorhead. A third GP18 works the local industries and yard in Fergus Falls.

After the coal train returns from Moorhead, the two Geeps set out the hoppers in the yard. The four-axle units then couple on to a string of covered hoppers and empty tank cars destined for industries and interchange. The Fergus Falls switcher takes the loaded coal hoppers to the Hoot Lake Power Plant yard.

The Moorhead-bound freight switches Green Plains on its way north. After working the BNSF Ry. interchange, the GP18s return with empty hoppers and tank cars. These cars are set



Having just dropped off cars for the BNSF Ry. at Dilworth, OTVR GP40s 4016 and 4021 return light to Fergus Falls. The units are seen crossing the South Branch of the Buffalo River near Sabin, Minn., on Feb. 26, 2015. Robert Ball photo

out in the Fergus Falls Yard and later distributed to the appropriate industries.

The southbound train also picks up loaded covered hoppers at Barnesville Junction. The loads are shipped out on the next day's train to Moorhead.

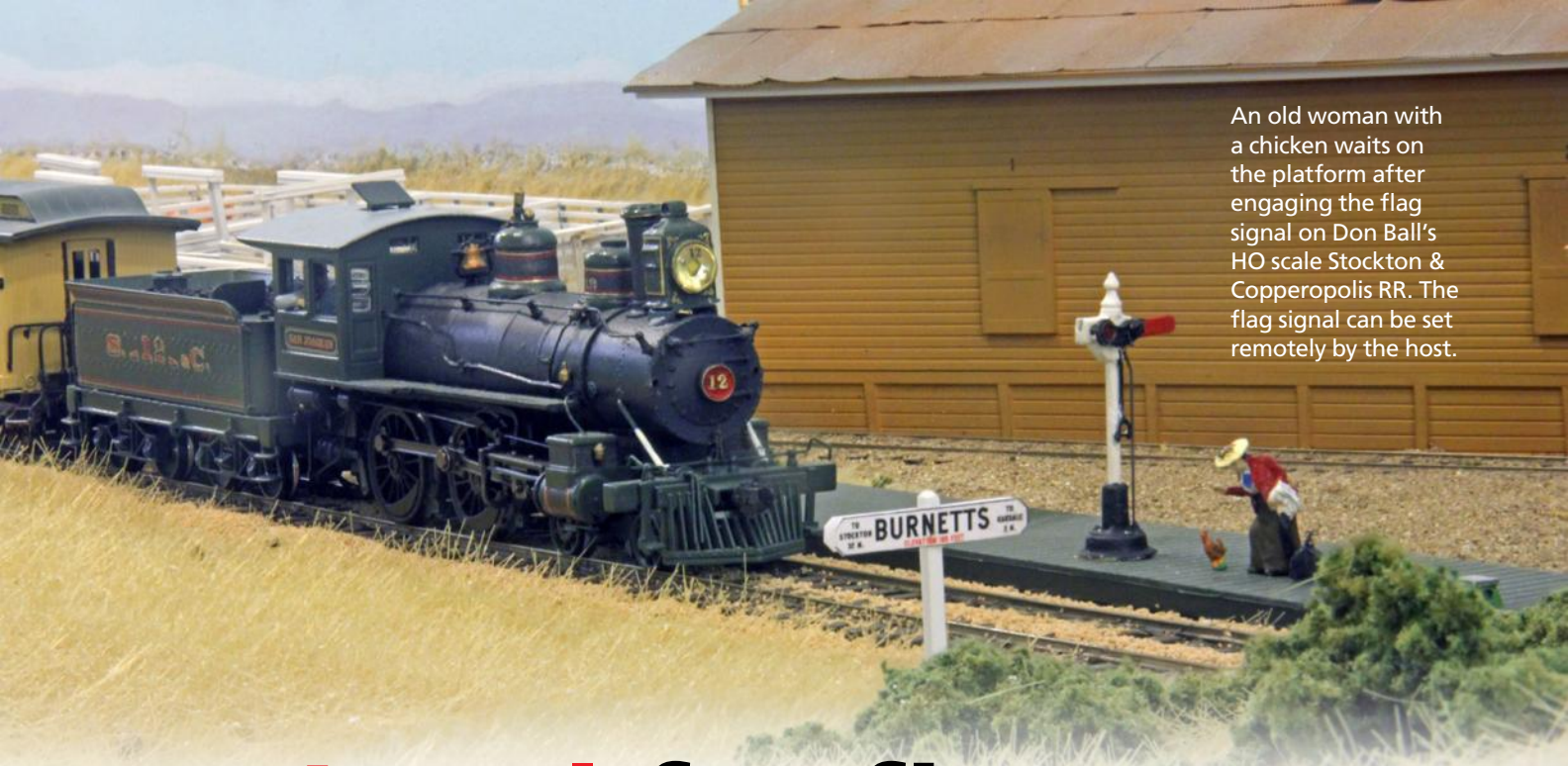
To add variety to the sea of coal hoppers and covered hoppers, I included Stenerson Lumber as an on-line customer in Fergus Falls. The real business is a block away from where it is on the plan, but I've seen photos of center-beam bulkhead flatcars and boxcars on the OTVR, so this isn't too much of a stretch.

Not now, but someday

While I designed this layout with the intent to one day build it, that day will not be soon. I still have to finish high school, college, and graduate school. It will perhaps be years before I actually have the time, space, and finances to create the Otter Tail Valley RR in N scale.

However, I still have my current layout to entertain me, and I can do projects for the OTVR, such as assembling buildings and collecting rolling stock. 

Nathan Brett is a senior in high school. In addition to model railroading, he enjoys flying radio-control aircraft and building model cars. His other interests include basketball and playing violin and guitar. After high school, he plans on pursuing a degree in aerospace engineering.

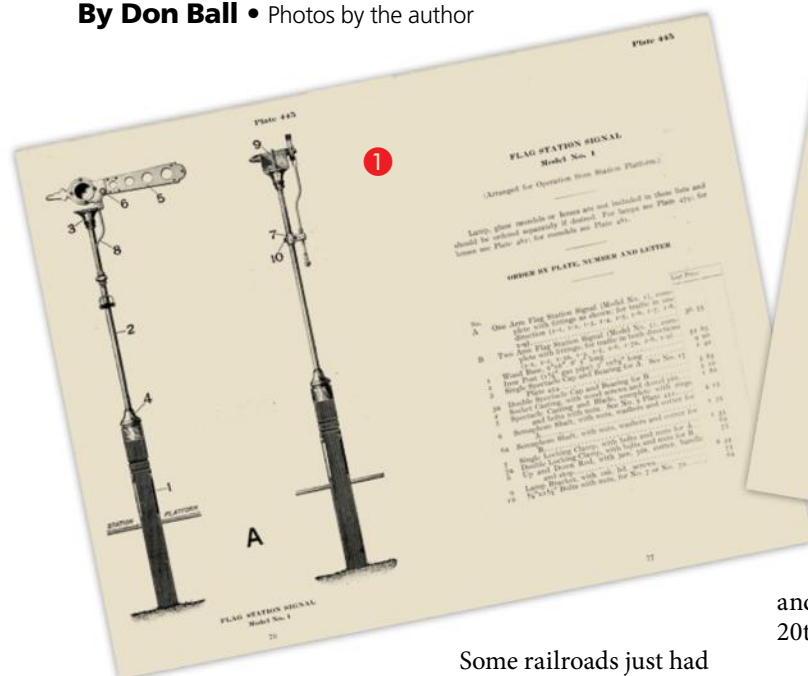


An old woman with a chicken waits on the platform after engaging the flag signal on Don Ball's HO scale Stockton & Copperopolis RR. The flag signal can be set remotely by the host.

A signal for flag stops

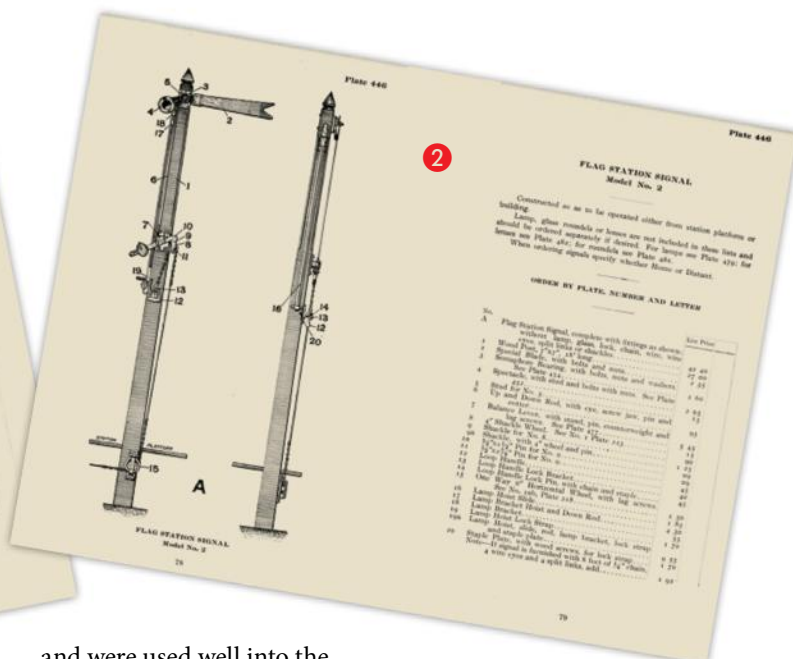
Add interest to operating sessions for passenger crews with this working detail

By Don Ball • Photos by the author



Everyone knows what a flag stop is: a place where trains have no scheduled stops but passengers can board if they “flag” the train. The question is, how did they actually signal the train to stop?

Some railroads just had the engineers check for people on the platform, while the more affluent lines used a flag station signal. These small, manually operated signals were sold by United Switch & Signal, General Railway Supply, and others, ① and ②,



and were used well into the 20th century.

My HO scale Stockton & Copperopolis RR has several flag stops, and I thought these signals would add operating interest and give the crews something to watch for when running passenger trains.

I wanted several of these signals and didn't want a

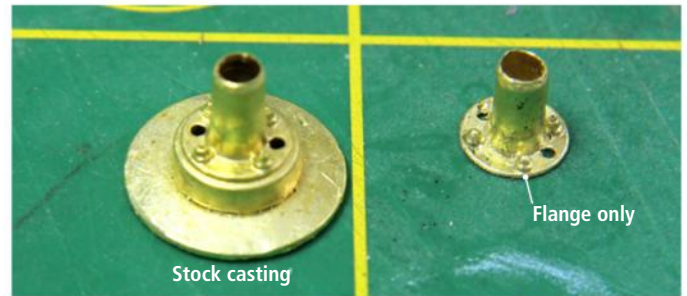
major scratchbuilding project, so parts needed to be readily available. Another need was the signal should be able to be cleared by the train crew but set from a remote location.

Fortunately, Tomar had the signal hardware, and Tortoise by Circuitron switch motors provided the motion.

Basic parts

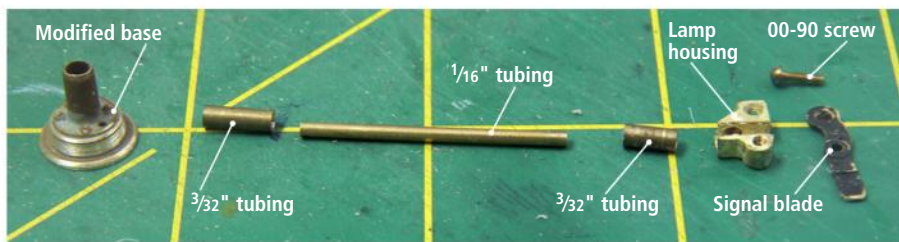


From the Tomar Industries catalog (www.tomarindustries.com), I used the train order signal base, lamp housing, blade, and finial. Brass tubing and wire rounded out the parts to build the signals.

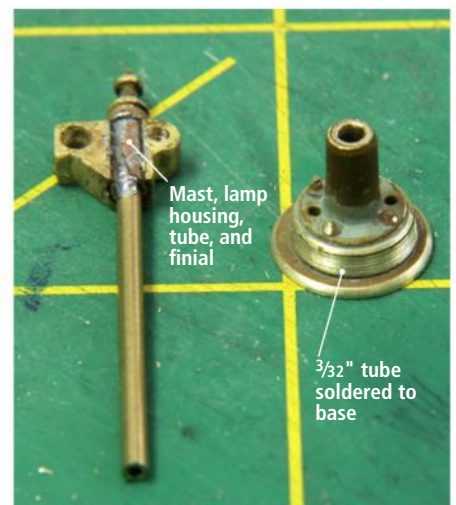


The Tomar base seemed a bit heavy to me, so I used my lathe to turn it down to a lighter-weight part. With a little more effort, I could make an even smaller base. An electric drill and a file will work just as well if you don't have a lathe.

Assembling the mast

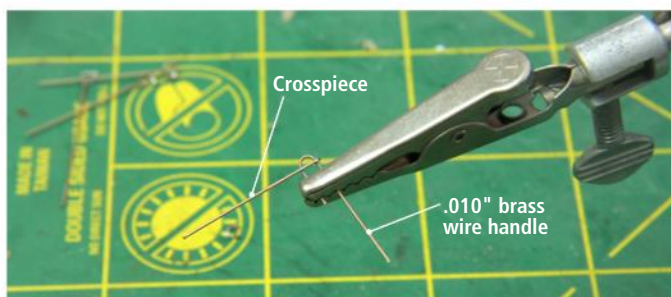


I used $\frac{1}{16}$ " diameter brass tubing for the mast with some short pieces of $\frac{3}{32}$ " tube to adapt it to the Tomar parts. I modified the blade by removing all of the lenses except one, and then shortened it and rounded the end to more closely resemble the prototype.



I soldered the $\frac{3}{32}$ " tubing to the $\frac{1}{16}$ " tubing, then soldered the assembly into the lamp housing and attached the finial at the top. I soldered the other $\frac{3}{32}$ " tube into the base. I attached the blade to the lamp housing with a 00-90 screw.

Adding detail

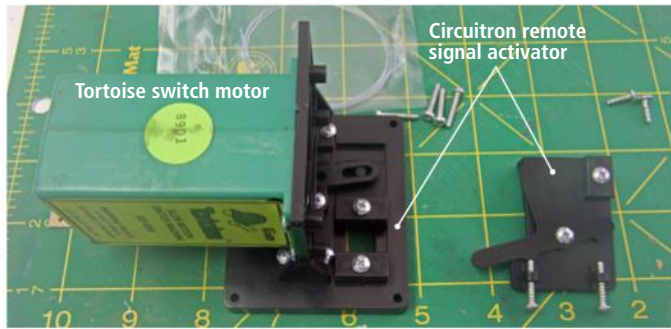


On the prototype, the signal is activated by the passenger pulling down on a manually latched handle. When the train arrives, the conductor releases the pull to return the blade to the normal position. I simulated the handle with some .010" brass wire soldered together.



The handle is formed by soldering a crosspiece to a looped piece of rod, then a rod is soldered onto the loop. The excess loop wire under the crosspiece is then trimmed off. Once the parts were assembled, the completed handle was soldered to the mast.

Making it move



I used a Tortoise by Circuitron switch motor and a remote signal activator to move the signal. The remote signal activator is specifically designed for use with a semaphore and was easy to install and adjust to get the blade travel I wanted.

I glued the base to the station platform after drilling a hole through the benchwork to allow for the actuating wire. The Tortoise and actuator were assembled according to the instructions, and the signal dutifully went up and down.

Materials list

Circuitron

800-6000 Tortoise switch motor
800-8100 remote signal activator

Mouser

655-RTE24012 Schrack double-pole double-throw 12V relay

RadioShack

275-1547 normally open push buttons
275-1548 normally closed push buttons
276-1101 1N4001 diode

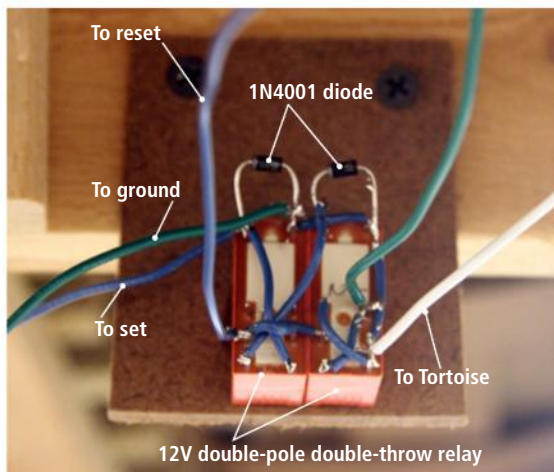
Tomar Industries

6048 lower quadrant semaphore head
6054 finial
6063 round train order base
6070 lower quadrant semaphore arm

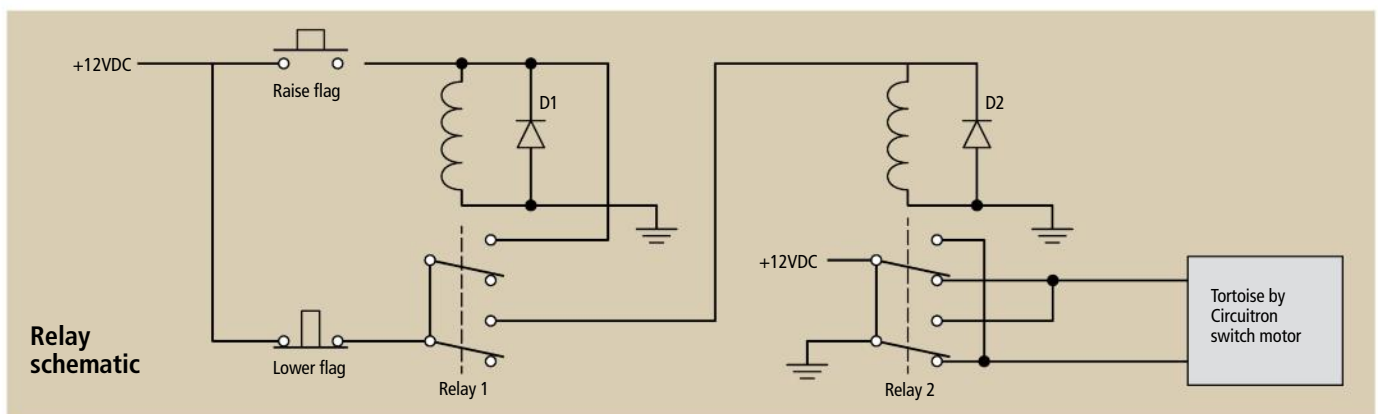
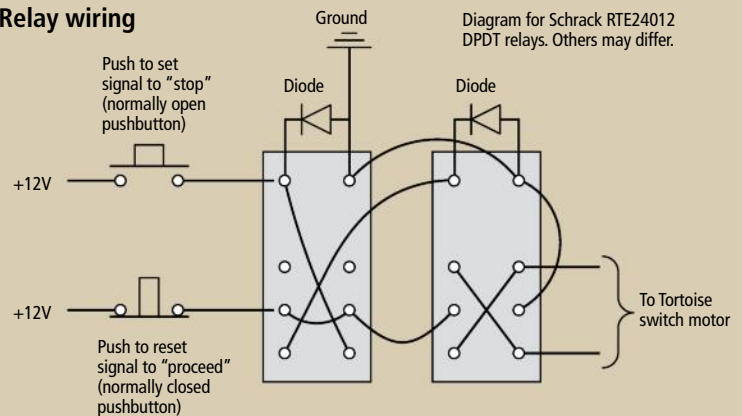
Miscellaneous

$\frac{3}{32}$ " brass tube
 $\frac{1}{16}$ " brass tube
.010" music wire

Electrical circuit



Relay wiring



The electrical circuit uses two non-latching relays. One push of the stop button raises the signal while a push of the release button lowers it.

I glued two double-pole double-throw (DPDT) relays together and mounted them on a piece of tempered hardboard. Then I mounted the board to the benchwork below

the layout and wired the switches to the Tortoise machine and the pushbuttons. I mounted my stop buttons in a semi-concealed location so the flag signals could be surreptitiously operated as I wander around the railroad during an operating session. The signals now provide added interest for the crews running the passenger trains. 

From first train set to railroad empire...

5821

RWS

RWS

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To more accurately model the prototype, Kim Nipkow added overgrown vegetation, junk, and other details to his HO_{N3} Chama Yard module. Kim models the yard as it looks today on the Cumbres & Toltec Scenic RR.

WEEDS AND JUNK

Enhance a yard or engine terminal scene with static grass and scrap box parts

By Kim Nipkow

Photos by the author

RARELY IS A RAILROAD YARD, engine terminal, or any industrial lot, a pristinely landscaped piece of real estate. When I visited the Cumbres & Toltec Scenic RR's yard in Chama, N.M., I wondered if I could find the railroad between all the metal parts scattered around the engine terminal. This tourist railroad runs steam locomotives and other vintage equipment between Chama and Antonito, Colo., along a stretch of the former Denver & Rio Grande Western Ry.'s narrow gauge San Juan Extension. The present-day Chama Yard is also the prototype for my HO_{N3} (HO scale, 3 foot gauge) modular layout.

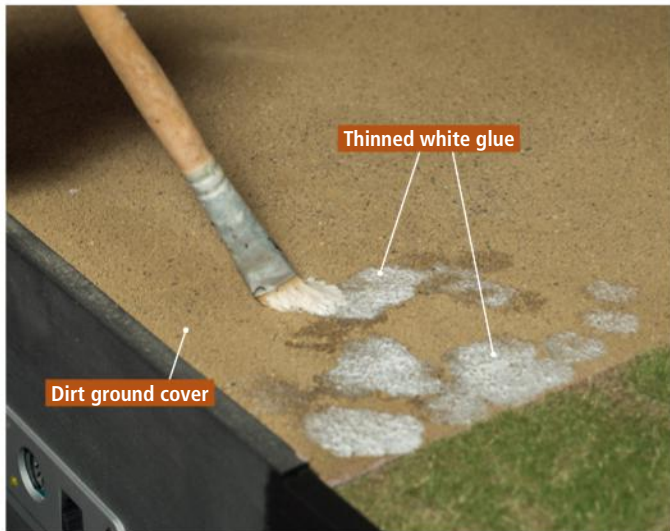
To make the modeled scene look like the real thing, I couldn't have a carefully manicured green lawn surrounding the tracks and structures. Often the land around a yard that's not being used for some other purpose is overgrown. It's also a dumping ground for all sorts of junk, including freight car parts, leftover building materials, and old timbers.

Successfully modeling industrial scenery is the same as modeling any landscape. I looked to prototype photos for inspiration.

Follow along as I show you how I used static grass and scrap box parts to scenic and detail my railroad yard.

Kim Nipkow wrote about modeling cinder and dirt ballast in the July 2017 Model Railroader. He lives in Switzerland.

GROUND COVER



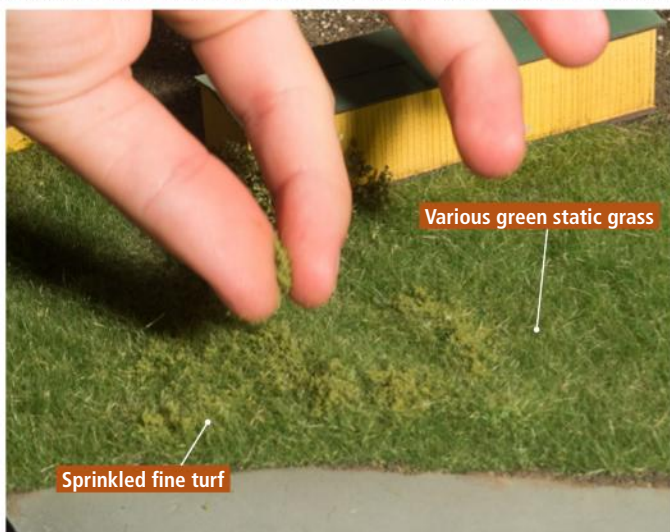
LAYERS OF GROUND COVER. I built up the ground cover at Chama in layers. First I sprinkled finely sifted dirt over the scenery base. To affix the dirt, I used a pipette to saturate the area with wet water (water mixed with a few drops of dish soap) and then applied thinned white glue. Applying the wet water first ensures the glue penetrates the entire layer of dirt. After the dirt layer dried, I brushed thinned white glue (1 part glue, 2 parts water) in a random pattern over it.



THATCH LAYER. Using my homemade battery-powered applicator, I added the first layer of static grass. I stuck the metal grounding pin into the wet scenery, then loaded the tool's screen with flocking and shook it over the wet glue.

[Static grass applicators apply an electrical charge to the flocking, so that the fibers stand on end like real blades of grass. Firms including GrassTech USA, Noch, and Peco make commercially available static grass applicators. – Ed.]

I used Heki 3363 Wintergras, which consists of short brown grass fibers. This material does a good job simulating the dead thatch layer of an overgrown lot.



THICK GRASS AND WEEDS. After allowing the first layer to dry for about an hour, I again applied thinned glue and added a layer of green static grass. For this scene I used Silflor MiniNatur 423 4.5mm Autumn Grass.

This process can be repeated several times, depending upon the desired thickness of the vegetation. I used several different colors and lengths of flocking in the photo above. I also sprinkled on some Woodland Scenics T44 Burnt Grass Fine Turf for added color and texture.



REUSE LOOSE FLOCK. After each application of static grass, I used a shop vacuum to remove any loose flocking. The cloth over the vacuum nozzle caught the loose fibers so that I could reuse them.

ADDING JUNK



RUSTY WHEELSETS. Who doesn't have extra wheelsets in their scrap box? These make great additions to a railroad yard scene. For each wheelset, I first used a grinding stone in a motor tool to flatten the pointed axle ends for a more realistic appearance. Then I painted the wheelset with rusty-brown paint and finished it off with an application of rust-colored powdered pastels.



OLD TRUCKS AND CABLE REELS. I also weathered some spare trucks, using the same painting and powdered pastel techniques that I used with the wheelsets. Empty wood cable reels are also common around railroad and industrial sites. The cable reel in the scene above is a laser-cut wood kit from GCLaser (www.gclaser.com). After assembly, I weathered the reel with a wash of thinned brown-gray colored paint.



SPARE PARTS. I prepared the wheelsets the same as with the rusty versions. However, I painted them gray and applied bright orange pastel powders to simulate fresh surface rust.

Other details include a spare steam dome from Keystone Locomotive Works, rail sections, and wheels removed from axles. I painted the rails and wheels brown and weathered them with rusty-brown powdered pastels.

I cut the cross-ties from a $\frac{1}{16}$ " thick wood sheet from Northeastern Scale Lumber. Then I weathered the ties with a brown-gray paint wash and painted the tie ends gray to simulate the look of a wood preservative used by the prototype railroad.



EASY TARPS. Used to protect building materials and other equipment from the elements, tarps are also an easy detail to add to a railroad yard scene. Into the 1970s, most tarps would have been made out of heavy canvas. Today, heavy-duty plastic tarps, often colored blue, are common.

To model tarp-covered materials, I first cut a piece of aluminum foil to size. Then I formed the foil around a small block of wood. Once I was satisfied with the shape I airbrushed the tarps white or blue, then weathered them with a gray paint wash. With the block of wood removed, the foil held its shape as I attached it to the scenery base with white glue. **MR**

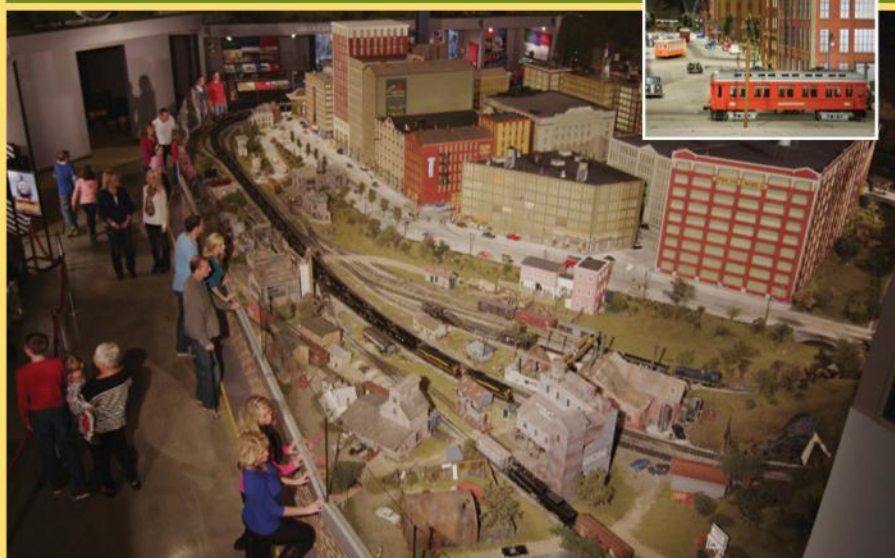
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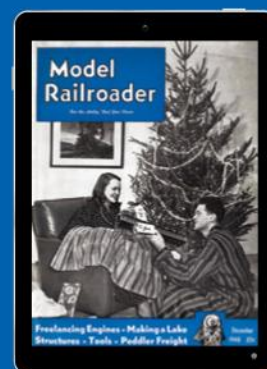


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Replacing a factory-installed sound decoder



Large articulated locomotives like Larry Puckett's Clinchfield Challenger 4-6-6-4 make an impressive presence, and their sounds overwhelm other locomotives. But this model from 2004 didn't have all the features available today. See how Larry replaced the factory sound decoder with a recent unit in this month's column.

One of the realities of Digital Command Control (DCC) decoders is that as technology advances, manufacturers keep updating decoders, adding new features, functions, and sounds. Consequently, even an expensive model that was at the cutting edge when it was released may be out of date in a few years.

I ran into that problem with my Athearn Genesis Challenger 4-6-6-4 lettered for the Clinchfield. These models were first released around 2004, with an early decoder that lacked a lot of features we've come to expect today in our sound-equipped locomotives.

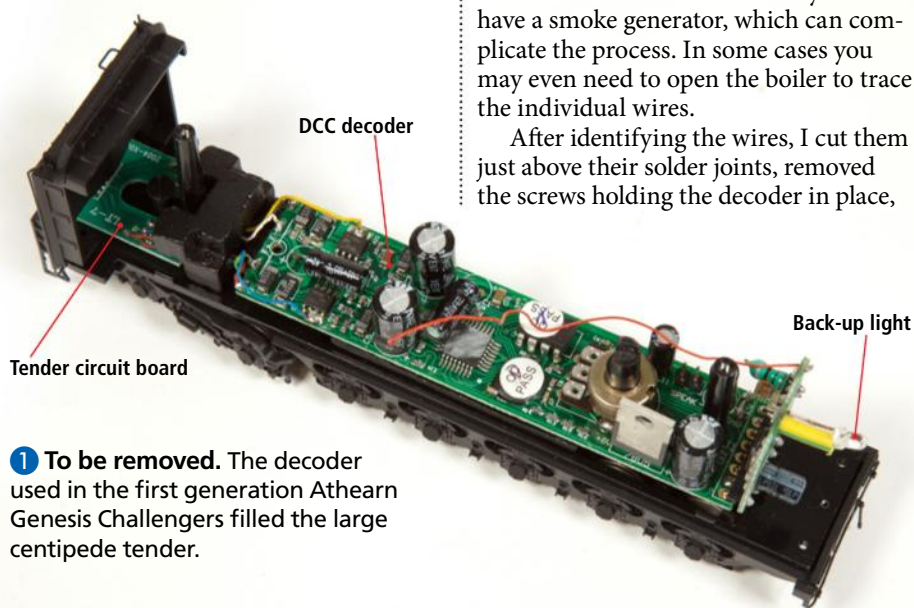
My model appears to be pretty much the same externally as the most recent releases, so replacing the whole model seemed a waste of money. Instead, I tackled the job of pulling out the old decoder and replacing it with a new one. Although my model is likely different from those you might have, the steps in replacing a decoder should be similar.

Right off I ran into the problem of getting to the decoder inside the tender. There are screws under the coal bunker and under hatches on the tender deck. The rear of the tender has to be removed after taking out two screws on either side of the coupler and one behind it. Finally

I was able to slide the tender body off the chassis, revealing the decoder **1**.

The decoder is shaped specifically to fit this tender, even serving as a base for the light-emitting diode (LED) that illuminates the locomotive's rear light. The decoder is held in with two screws.

Another problem you may run into is that factory-installed decoders may not follow the National Model Railroad Association wiring standard. Therefore, the first task is to figure out what each wire is connected to.



1 To be removed. The decoder used in the first generation Athearn Genesis Challengers filled the large centipede tender.

Before jumping into a lengthy diagnosis of the wire connections, do an internet search to see if anyone has worked on the same locomotive model and posted the wiring information. I got lucky and found a detailed description of all the wire connections for this decoder, saving me some time.

However, it's still a good idea to verify these connections. After checking the wire connections, I discovered some were reversed, including those for the power pickup and the LED headlight.

If you can't find the wiring information for your specific model, here are a few tips for tracing wires. The easiest to trace are the wires going to the right and left track power pickups – just follow the wires up from the trucks to their solder points on the decoder and mark them with little strips of tape.

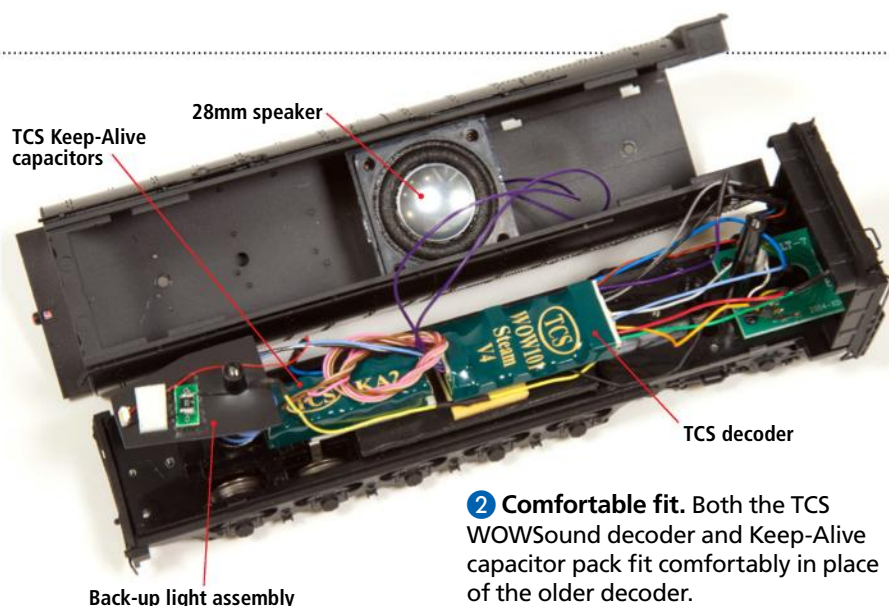
If yours are hidden, you can set a multimeter for resistance and check for continuity between each wire and the wheels on each side of the tender until you find the ones that match.

Next, look for the headlight wires. If it's a white LED, it's probably safe to assume it operates at about 3VDC. However you may want to start with 1.5VDC and use a single AA battery to test pairs of wires and see if the headlight comes on.

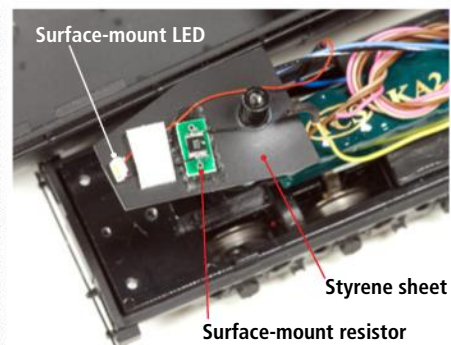
If that doesn't work, try two AA batteries, giving you 3VDC to work with. If during the process the drivers start to turn, you've found the motor leads.

Some steam locomotives may also have a smoke generator, which can complicate the process. In some cases you may even need to open the boiler to trace the individual wires.

After identifying the wires, I cut them just above their solder joints, removed the screws holding the decoder in place,



2 Comfortable fit. Both the TCS WOWSound decoder and Keep-Alive capacitor pack fit comfortably in place of the older decoder.



3 Lighting platform. A styrene shelf holds the light-emitting diode (LED) at the right level to illuminate the backup light. A 1,000Ω resistor protects the LED.

then lifted the decoder out. This left a small circuit board that connects to the electrical socket at the front of the tender.

I chose to install a TCS WOWSound Version 4 decoder with a Keep-Alive capacitor system. The WOWSound decoder offers excellent sound and motor control, a large selection of whistles (61) and bells (47), and a wide variety of other steam sounds.

In addition, the prototype throttle mode adds realism to the engineer's job. The standard format decoder and Keep-Alive fit neatly on the narrow frame.

To prevent any chance of damage to the decoder, I soldered the wires from the decoder's harness to their respective wires on the remaining small circuit board before connecting the harness to the decoder.

I prefer to do this because it's recently come to light that some soldering irons can leak current through their tips and damage sensitive parts on decoders during the soldering process (for more on this, see my website, www.dccguy.com). Once the connections were all made, I attached the decoder to the frame using double-sided foam tape **2**.

Because the old decoder apparently had a resistor to drop the current for the LEDs, I needed to install replacements. I soldered a 1000Ω, ½W surface-mount resistor on the negative wire to the headlight LED. Since the back-up light LED was mounted on the old decoder, I had to come up with a replacement.

I cut a piece of styrene, made a small hole in it, and slid it down on the rear screw post. The taper of the post combined with the size of the hole allowed me to control the position of the styrene.

After soldering wires to an Ngeineering incandescent LED, I attached it to this styrene platform using a small rectangle of double-sided foam tape. The platform also provided a convenient place for a 1,000Ω surface-mount resistor **3**.

The final step was installing a new speaker. Two flat 32mm diameter speakers mounted in plastic baffles and suspended from the top of the tender comprised the factory installation.

I knew from the outset that I wanted to replace them with a 28mm high bass speaker like the one I used in the brass Norfolk & Western Class J decoder installation in the January 2017 DCC Corner. The speaker is from Streamlined Backshop (www.sbs4dcc.com) and the enclosure from Micro-Mark, which also sells high bass speakers in a variety of sizes.

I drilled a small hole in the side of the enclosure near the bottom and inserted the two purple speaker wires from the decoder. After soldering the wires to the solder pads on the speaker, I ran a bead of cyanoacrylate adhesive (CA) along the lip inside the enclosure and seated the speaker. Remember to test the speaker before gluing it in place!

I considered gluing the enclosure to the top of the tender, then realized

I could use the old mounting screw to do the job. I test-fit the enclosure and made a mark on it from the outside, then drilled a 5/64" hole in the enclosure, being careful not to drill into the speaker.

Because the location of the speaker interfered with the mounting clips for the coal bunker insert, I added a couple strips of double-sided foam tape as spacers, creating just enough room for the clips. I then ran the screw into the back of the enclosure from the outside of the tender, and covered it again with the hatch casting.

After reassembling the tender,

I plugged in the harness from the locomotive and placed it on the programming track. I created a new DecoderPro roster entry and changed the address, then moved the Challenger back to the main track and proceeded to program the decoder on the main.

After setting the locomotive for heavy steam with articulation, I ran through the available whistles – all 61 of them. Since there were no Clinchfield whistles or bells to choose from, and no one was able to suggest a similar selection, I assumed that a Union Pacific three-chime whistle would be a reasonable alternative. I also selected a Chesapeake & Ohio bell.

The improvement in the bass frequencies because of the high bass speaker is amazing, especially with the heavy steam chuffs and a steamboat whistle like the Union Pacific prototype I selected.

To hear the sounds of this updated Challenger, visit my website. I'll also have a description of the process I went through to replace the orange headlight LED with a golden white one. [MR](#)



IT'S RECENTLY COME TO LIGHT THAT SOME SOLDERING IRONS CAN LEAK CURRENT THROUGH THEIR TIPS AND DAMAGE SENSITIVE PARTS ON DECODERS DURING THE SOLDERING PROCESS. - LARRY



ScaleTrains.com HO scale GEVO Tier 4 diesel

One of the latest locomotives to debut on North American rails, the General Electric ET44, joins the ScaleTrains.com HO scale roster. I reviewed a top-of-the-line Rivet Counter GE ET44AH that includes roadname and number-specific detailing and a factory-installed dual-mode ESU LokSound decoder. Like other ScaleTrains.com models, a value-priced, Digital Command Control (DCC)-ready Operator version with simplified detailing is also available.

The prototype. Part of GE's Evolution-series (or GEVO), the ET44 was designed to meet the Environmental Protection Agency's strict Tier 4 emissions standards. Like its predecessor, the ES44 introduced in 2004, the ET44 has a 4,400-hp, 12-cylinder GEVO diesel engine, Hi-Adhesion trucks, and a wide-nosed "Safety" cab. The ET44 has a longer frame and larger radiator section than the ES44. The GEVO Tier 4's

advanced emissions treatment equipment also requires a boxy enclosure that surrounds its exhaust stack. On early production units, this enclosure stretched over the engine compartment.

To date General Electric has built 899 of the Tier 4 GEVOs, most classed ET44AC. The BNSF GEVOs ride on A1A trucks (two powered outside axles and an unpowered center axle) and are classed ET44C4. Both CSX and Union Pacific have "heavy" versions, classed ET44AH and C45AH, respectively.

The model. The model's dimensions match a prototype drawing in *Locomotive 2017* (Kalmbach Publishing Co.) All the well-defined molded detail matches prototype photos, including engine access doors and panel seams. There's tread detail along the walkways and see-through tread on the pilot steps.

The Rivet Counter model features accurately placed separate detail parts,

including m.u. hoses and cables, and uncoupling levers. There's even a tow chain along the sill and rotating bearing caps on the trucks. The air intake and dynamic brake intake grills are see-through, with radiator and blower motors visible inside, respectively. Correct per the prototype, there's a separate antenna dome on the cab roof.

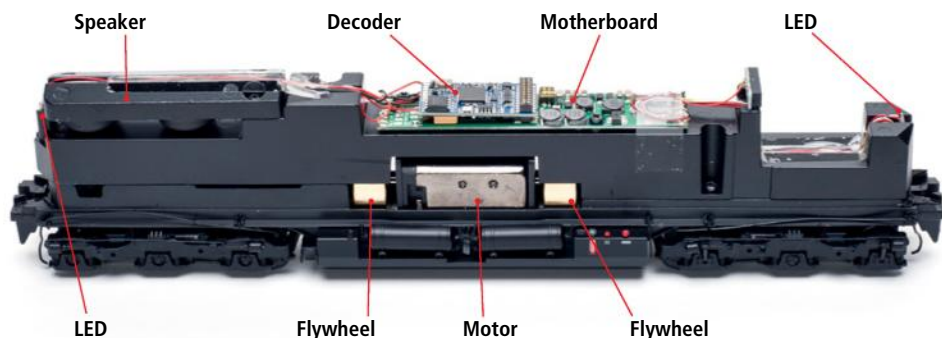
Although there aren't any crew figures, the cab interior is fully detailed with seats, a control stand, tinted windows, and separate windshield wipers.

The model is smoothly painted in the correct shades of CSX blue and yellow. The placement of the lettering, CSX logo, and every stencil matches prototype photos of no. 3250. The ET44AH classification is correctly placed on both sides of the cab in front of the lightning bolts.

Mechanism. After removing the front and rear couplers, I carefully lifted off the plastic body shell. A dual-flywheel-equipped motor rests in the center of the die-cast metal chassis and powers the truck-mounted gear boxes. Another die-cast metal weight runs the length of the locomotive.

The motherboard is screwed to the top of the weight, while the ESU LokSound 4.0 decoder is plugged into the board's 21-pin socket. Leads run from the motherboard to surface-mount light-emitting diodes (LEDs) that illuminate the headlights and ditch lights.

Two cube-type speakers are housed inside a die-cast metal enclosure screwed to the weight above the rear truck.



A heavy die-cast metal frame and all-wheel drive give the GEVO its pulling power.

Speed and pull tests. On both our direct-current (DC) and DCC test tracks, the GEVO held a steady 1 scale mph crawl without any jerkiness. The locomotive also steadily held 1 scale mph up and down a 3 percent grade, thanks to the decoder's excellent back-electromotive-force control. As shown in the charts at right, the locomotive accelerated to a prototypical 75 scale mph top speed during both DC and DCC tests.

Also shown in the chart is the model's impressive drawbar pull. The HO Tier 4 also hauled 17 HO freight cars up a 3 percent grade without slipping.

To test its minimum radius, I ran the Tier 4 around a circle of 18" radius set track without any difficulty. However, the model looks much more realistic rounding 22" radius or greater curves.

The decoder also includes the ESU PowerPack capacitor system to keep the sounds, lights, and operation steady over short stretches of dirty or uneven track. The PowerPack allows about 4 seconds of operation without track power.

DCC performance. The LokSound decoder's Full Throttle effects package provides a hands-on operating experience. I could simulate the sounds and motion of a locomotive drifting light through a yard, hauling a loaded train upgrade, or anything in between.

A button-controlled, BRAKE function allowed for realistic stops without having to use the throttle knob.

The DRIVE/HOLD feature let me manually notch the engine sound using the throttle knob, while keeping the speed at its current setting. I find this arrangement more reliable to use than the button-controlled manual notching of earlier LokSound decoders. There's also a separate RUN 8 feature that sets the sound to maximum rpm, or notch 8, when the locomotive starts out.

Opposite of the DRIVE/HOLD function is the COAST function, where the engine sound stays at idle and the knob controls the speed. This is useful for simulating a locomotive drifting downgrade. Also useful for going downhill is a separate dynamic brake effect that includes the engine dropping in rpm and the whirling sound of the cooling fans.

When I pressed function 2, the air horn and E bell sounded while the ditch lights alternately flashed, which is correct for the CSX prototype. Other

PERFORMANCE TESTS	
DRAWBAR PULL	5 ounces 69 HO scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
7.5 (start)	1
9	18
10	36
12	75
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	1
7	15
14	35
28	75

user-triggered sound effects include radiator fans, engine start up, and coupler crash. The ditch lights and headlight are independently controlled.

Pressing function 5 sets the locomotive headlight in the opposite direction of travel to dim, while turning off the other headlight. This feature is used when the locomotive is at the end of the train as part of a Distributed Power Unit (DPU) consist.

Every lighting, sound, and performance aspect of the decoder can be adjusted via configuration variables (CVs). Using an ESU LokProgrammer computer interface (sold separately), I changed the locomotive address, added acceleration and deceleration momentum, advance consisted two Tier 4 locomotives, and set up consist functions.

Even without the LokProgrammer hardware, using the free downloadable LokProgrammer software is the easiest way to program the indexed CVs used by ESU decoders. Simply make the programming changes on the computer screen, click the SHOW CHANGED CVs option, then manually enter the CVs into the DCC system.

DC performance. When run with a DC power pack, most of the locomotive's sound effects are automatic. The headlights and ditch lights operate according to the locomotive's direction of travel, and the engine rpm sounds go up and down with the throttle setting. The built-in momentum added realism. As long as I kept the throttle at 6V, the sounds remained steady, even when I brought the locomotive to a stop.

Museum-quality modeling and a mechanism that runs like a Swiss watch make the ScaleTrains.com GEVO Tier 4 a worthy HO model of its present-day prototype. — Dana Kawala, senior editor

Facts & features

Prices: Rivet Counter version: first run, \$224.99, second run, \$229.99 (DCC sound); \$149.99 (DC, no sound)
Operator version: \$99.99 (DC, no sound)

Manufacturer

ScaleTrains.com Inc.

7598 Highway 411

Benton, TN 37307

www.scaletrains.com

Era: 2012 to present

Road names (multiple road numbers and paint schemes available): CSX, BNSF, Canadian National, General Electric demonstrator, Norfolk Southern, ScaleTrains.com, and Union Pacific

Features

- 21-pin DCC plug
- All-wheel-drive and electrical pickup
- Blackened metal wheels in gauge
- Drill starter points for grab irons, m.u. hoses, and other not-included detail parts (Operator version)
- Dual-mode ESU LokSound 4.0 decoder with Full Throttle effects package (DCC version)
- ESU PowerPack capacitor (DCC version)
- Five-pole, skew-wound motor with dual brass flywheels
- Light-emitting diode headlights
- Minimum radius: 18" (22" recommended by manufacturer)
- Operates on codes 70, 83, and 100 rail
- ScaleTrains.com metal semi-scale Type E knuckle couplers, mounted at correct height (Operator version has plastic knuckle couplers)
- Weight: 1 pound, 10.3 ounces

The Rivet Counter model features many separate detail parts.





Bachmann Sound Value N&W Class J 4-8-4

The Norfolk & Western Ry. Class J

4-8-4 was the last new steam locomotive built for passenger service in the United States. And the third-to-last passenger steam locomotive, no. 611, is still running, wowing steam fans old and young in excursion service.

Bachmann's model of the 611 has been around for a while too, but like its prototype that was restored to steam in 2015, it's back with a new SoundTraxx Sound Value dual-mode sound decoder.

The prototype. Norfolk & Western was well known for its loyalty to steam power long after other roads had converted to diesels. When the N&W needed new passenger power after World War II, it turned to its Roanoke Shops for three more Class J 4-8-4 locomotives.

The first Js were built in 1941, numbered 600 to 604. A second group, nos. 605 to 610, was built during the war but left unstreamlined, as they were designated as freight locomotives. They

received streamlining after the war. The final three, 611 to 613, were built in 1950.

All of the locomotives were equipped with Baker valve gear, and the second two batches had alligator crossheads instead of the multiple-bearing crossheads of the first five locomotives.

Norfolk & Western specified 70-inch drivers for its passenger locomotives, somewhat smaller than typical. But the N&W had a curving, hilly main line, so it needed a locomotive that could start a heavy passenger train on a grade, a curve, or both, and do so quickly. The smaller drivers worked well for N&W's situation.

The Js soldiered on until the end of 1958, spending their last months pulling secondary passenger trains or freights. Graham Claytor, the president of the Appalachian Coal Co. and a friend of N&W President Stuart Saunders, convinced Saunders to donate the locomotive to a new railroad museum in Roanoke.

Claytor's son Bob, who worked for N&W, eventually became CEO of N&W

successor Norfolk Southern, and arranged the restoration of no. 611 to steam in 1982. The locomotive was an excursion star for 12 years, then went back into storage. In 2015, no. 611 was again making steam, and is now pulling excursion trains across the East.

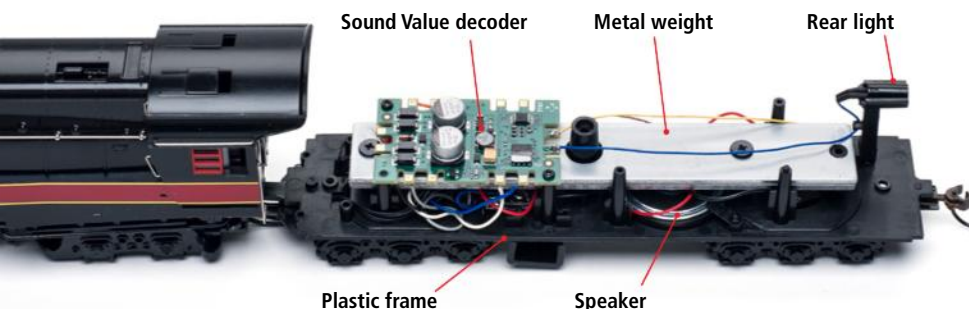
The model. Bachmann has offered N&W Class Js before. This model appears to be a re-release of the 2002 Spectrum model, reviewed in the April 2002 *Model Railroader*. The major upgrade is the SoundTraxx Sound Value dual-mode decoder mounted in the tender.

The boiler is a plastic casting mounted on a die-cast metal chassis. The pilot and trailing trucks are also die-cast metal. Separately applied details include the handrails along the locomotive's running boards and grab irons on the locomotive and tender. All dimensions were within scale inches of drawings published in the *Model Railroader Cyclopaedia: Vol. 1, Steam Locomotives* (Kalmbach Publishing, 1960).

The glossy black finish is smoothly applied, and the Tuscan Red striping with gold borders matches published drawings for width and placement.

Current photos of no. 611 show builder's plates on the sides of the smokebox that are missing from the model, but in-service photos of Class Js in the 1950s show the locomotives didn't have them then. Microscale's HO Norfolk & Western steam locomotive decals, set 87-106, includes builder's plates.

A die-cast metal weight, which cradles the can motor and its flywheel, is attached



The SoundTraxx Sound Value decoder and its speaker are housed in the tender. All 12 of the tender's wheels pick up current.



to the die-cast metal frame. The motor drives the second driver through a worm gear and gear tower. The other drivers are powered by the side rods. All drivers and tender wheels pick up current.

The metal running gear accurately models the prototype, including the alligator crossheads and tandem main rods.

On the test track. I tested the model on DCC using an NCE PowerCab. There is considerable lateral motion in the drivers to allow the locomotive to negotiate 22" radius curves. There is also a corresponding looseness to the side rods, which on our model seemed to cause intermittent binding, especially when going around left-hand curves. Careful observation narrowed the problem down to the second driver on the fireman's side.

By carefully re-positioning the rods, we fixed the issue. Although it still jerked slightly in speed step 1, the motion smoothed out by speed step 3. At speed step 1, the Class J moved at 3 scale mph. It reached a top speed of 71 scale mph at speed step 28.

On our DC test track, sound, lights, and motion started at 7.5 scale mph with 6.5V applied to the track. With practice I could throttle back the locomotive and bring it to a stop without losing sound. The top speed was 81 scale mph at 12V.

The Class J developed 3.68 ounces of drawbar pull, equivalent to 51 freight cars on straight and level track, or 17 passenger cars. During our hill climb test, the locomotive slipped a bit while it pulled a four-car passenger train up a 3 percent grade that includes a 36" radius curve.

Sound and lights. User-triggered effects in DCC include long and short whistle

Facts & features

Manufacturer

Bachmann Industries Inc.
1400 E. Erie Ave.
Philadelphia, PA 19124
www.bachmanntrains.com

Price: \$429

Road numbers: no. 611 railfan, no. 613

Era: 1950 to present

Features

- 22" minimum radius curves
- Can motor with flywheel
- Dual-mode sound decoder
- E-Z Mate Mark II couplers at correct height
- Operating headlight and backup light
- RP-25 contour metal wheels, in gauge
- Separately applied metal railings
- Weight: 1 pound, 9.8 ounces

PERFORMANCE TESTS

DRAWBAR PULL	3.68 ounces
	17 HO scale passenger cars

SCALE SPEED (DC)

VOLTS	SCALE MPH
6.25 (start)	7.5
8	36
10	63
12	81

SCALE SPEED (DCC)

SPEED STEP	SCALE MPH
1	3
7	20
14	40
28	71

blasts, a bell, and the headlight. The decoder was easy to program using configuration variables (CVs). I changed the locomotive address, added momentum, and adjusted the volume levels of individual sound effects. I could use CV116 to fine-tune the exhaust sound synchronization to four chuffs per wheel revolution. A full list of the programmable CVs supported by the Sound Value decoder is available on the Bachmann website.

On DC the exhaust sounds chuffed in synchronization with the drivers as I increased and decreased the throttle. When I quickly increased the voltage a grade-crossing whistle signal (two long blasts, a short blast, and a long blast) sounded. The headlight operated according to the direction of travel.

Updated with Sound Value effects, the latest Bachmann class J remains an accurate model of its famous prototype.
— Eric White, associate editor



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Walther's Mainline HO scale insulated boxcar

Walther's continues to expand its Mainline series of HO scale freight cars with the addition of a 50-foot insulated boxcar based on a Pacific Car & Foundry prototype. The injection-molded plastic model features a one-piece body and underframe casting and a separate roof with six tabs that hold it to the carbody.

Our sample is decorated as Southern Pacific no. 671184, part of the railroad's B-70-5-R class of insulated boxcars numbered 671170 through 671279. The 250-car lot (originally numbered 672950 through 673199) was built by Pacific Car & Foundry in March and April 1960. The cars were reconditioned and renumbered at SP's Sacramento shops in 1978. The cars were no longer listed in the April 1984 *Official Railway Equipment Register*.

The stencil to the right of the reporting marks reads "DF Loader Insulated." On the prototype, that indicated the insulated car was equipped with Evans Damage Free load-restraining equipment, including belt rails, crossbars, deck boards, and gates.

In Association of American Railroads code, an insulated boxcar is designated RBL (bunklerless refrigerator car with load-restraining devices). The cars are used to haul canned goods, perishables, and temperature-sensitive materials.

The Walther's Mainline car has a plastic see-through running board with molded corner grab irons. Underneath, the center sills, crossties, crossbearers, bolsters, draft-gear boxes, and Hydra-Cushion are molded as a single piece. The underframe is secured by screws from the inside (the ones that hold the

steel weight in place) and outside (the ones that hold the trucks in place). The air reservoir, control valve, and brake cylinder are separate parts tethered by molded piping.

The insulated boxcar's dimensions closely follow prototype drawings in Anthony W. Thompson's *Southern Pacific Freight Cars, Volume 4: Boxcars* (Signature Press, 2006). The lettering placement matches prototype photos of a B-70-5-R insulated boxcar in James Kinkaid's *Southern Pacific Color Guide to Freight and Passenger Equipment, Volume 2* (Morning Sun Books Inc., 2005). There's one minor error in the Clean, Oil, Test & Stencil panel. The built date is listed as 3-75. It should be 3- or 4-60, depending on the road number.

Since the model is lettered to match a reconditioned RBL, it shouldn't have a running board. Instead, there should be an L-shaped grab iron on the corner of the roof closest to the brake wheel.

To the test track. The model weighs 4.5 ounces, which is the correct weight per National Model Railroad Association Recommended Practice 20.1. The 33" metal wheels are mounted on plastic axles and correctly gauged. The Proto-Max couplers are body mounted at the correct height.

The car ran without incident while being pulled and pushed around 18" radius curves and comfortably navigated no. 5 turnouts.

The Walther's Mainline Pacific Car & Foundry 50-foot insulated boxcar has a good mix of molded and separately

Facts & features

Price: \$27.98

Manufacturer

Wm. K. Walther's Inc.
5601 W. Florist Ave.
Milwaukee, WI 53218
www.walther's.com

Era: 1978 to 1983 (as decorated)

Road names: Southern Pacific; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Bangor & Aroostook; Chicago, Burlington & Quincy; Chicago & North Western; Denver & Rio Grande Western; Erie Lackawanna; Great Northern; Penn Central; Pennsylvania RR; Southern Ry.; and Union Pacific. Two road numbers per scheme; also available undecorated.

Features

- 9-foot Youngstown plug doors
- 33" metal wheels on plastic axles, correctly gauged
- 70-ton roller-bearing trucks
- Diagonal-panel roof
- Hydra-Cushion cylinder detail and extended draft-gear boxes
- Late improved Dreadnaught ends
- Weight: 4.5 ounces, correct per National Model Railroad Association Recommended Practice 20.1

applied details, the latter strong enough to withstand normal handling. With the variety of commodities RBLs handled, this boxcar would look appropriate spotted in front of a brewery, cannery, or any other business that shipped temperature-sensitive materials. — *Cody Grivno, associate editor*

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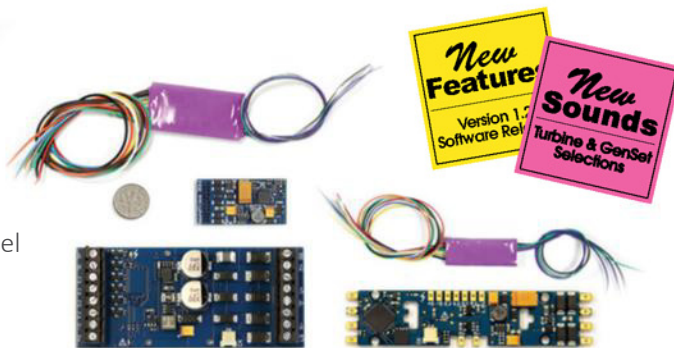
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QUICKLOOK

Atlas N scale PS 4000 covered hopper

Price: \$29.95 (undecorated, \$24.95)

Manufacturer

Atlas Model Railroad Co.
378 Florence Ave.
Hillside, NJ 07205
www.atlasrr.com

Era: 1962 to 1986 (as decorated)

Road names: Minneapolis, Northfield & Southern (two road numbers); Baltimore & Ohio; Illinois Central Gulf; Norfolk & Western; and undecorated. New road numbers: Chessie System and Southern Pacific. (Three numbers each unless noted)

Comments: Created to speed unloading grain at breweries, the Pullman-Standard 4,000-cubic-foot capacity PS-2CD covered hopper is being brought to N scale as a highly detailed Master Line model by Atlas. The model uses tooling acquired from BLMA after Atlas purchased that company. For a

review of the BLMA release, see the August 2010 *Model Railroader*.

Atlas' model is finely detailed, with an injection-molded plastic body; separately applied loading and unloading hatches; detailed brake equipment; and see-through, etched-metal brake platform and roof walks.

The 100-ton BLMA roller-bearing trucks have 36" blackened metal wheels, which were in gauge. The body-mounted plastic knuckle couplers were mounted at the correct height. The model's major dimensions matched those listed for the car in the 1963 *Official Railway Equipment Register*.

Our sample was decorated for the Minneapolis, Northfield & Southern Ry., a Minnesota short line that was bought by Soo Line in 1982. Hoppers no. 600 and 601 were on the railroad's register until the Soo merged the MNS in 1986.



The paint scheme matches a prototype photo I found online, though it lacks items applied later, such as the Automatic Car Identification (ACI) barcode and Clean, Oil, Test & Stencil (COTS) panel. All lettering is clear and sharp, with even the tiniest lettering legible under magnification.

The car ran flawlessly through the no. 6 turnouts and 10" curves of our Salt Lake Route project layout, and coupled easily to other cars.

Pullman-Standard built about 2,000 of these cars between 1962 and 1964 to carry grain, flour, fertilizer, and chemicals. Dozens of railroads owned them. Any N scale model railroad set in the 1960s or later could use one or more of Atlas' new offerings. — Steven Otte, associate editor



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Scene and photography by Ken J. Johnson
First test model shown

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www.scalettrains.com

QUICKLOOK

The TrainMaster HO scale yard bunkhouse kit

Price: \$25

Manufacturer

The TrainMaster LLC
2830 Fort Island Dr.
Fairlawn, OH 44333
www.thetrainmaster.com

Era: 1900 to 1960

Comments: A yard bunkhouse is the latest addition to The TrainMaster HO scale QuickKit line. The kit features laser-cut wood clapboard walls; a one-piece porch railing and roof support assembly; three sizes of stripwood; cardstock roof panels, doors, and windows; paper roofing material; and clear window glazing.

Bunkhouses were often found in or close to yards. The rooms in the railroad-owned structures were small and sparse, but they provided a place for train crews to rest between assignments. Today, train crews are either

driven back to their home terminal or put up at a nearby hotel.

The TrainMaster yard bunkhouse has a footprint of 2½" x 5". The parts fit together well and required minimal sanding. Per the instructions, I assembled the kit with wood glue, though you could also use cyanoacrylate adhesive. I secured the window glazing with clear parts cement.

Once the building was assembled, I primed the model with Rust-Oleum Painter's Touch 2X gray primer, inside and out, to seal the wood. This reduces the chances of the wood warping from changes in humidity. I stained the scribed wood for the porch with an India ink wash. I airbrushed the building and brush-painted the paper roofing material with acrylic craft paint.

Even though the building is sold as a yard bunkhouse, it could be used for other purposes. The structure would look at home as part of a lakeside resort or housing for farm laborers.

If you've never built a wood kit before, The TrainMaster yard bunkhouse is a good entry-level model. The detailed, well-illustrated instructions are easy to follow, and there are more than 40 process photos on the manufacturer's website. In an evening or two you'll be rewarded with a good-looking structure. – *Cody Grivno*



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Superiority isn't complicated

Regular readers have seen me spout off more rules than a cop on a traffic stop: Rule 70 this, Rule 93 that, don't ever forget Rule 99! It's enough to have many defy Rule G as heartily as some railroaders once did. Can't we make things less bewildering?

Mark Amfahr, who once dispatched in former Rock Island timetable-and-train-order territory, did so. He made operation easy for newcomers and not-so-newcomers with a checklist that simplifies basic TT&TO decision-making.

Imagine an operating session where you're a newcomer and you're marked up for train No. 206. A quick sideways glance detects steady eyes bearing down on you expectantly. It's the same look they give people who volunteer to sweep a minefield. The host tells you to relax because there's time to get acquainted with the model railroad before departure. Shuffling through the job's paperwork doesn't chase away the butterflies.

Train No. 206 is an east-bound hotshot, a through train from West Yard to Eastport with no pickups or setouts to be concerned with. The paperwork includes a timetable, a clearance card, a bundle of waybills, and the checklist.

"You must have a clearance card." Check. "Has a train order been issued for your train?" Um, no, the clearance card shows none. "Is your train listed in the timetable?" Gulp. Thumb,

thumb, thumb through the pages. By golly, there's No. 206. "What class is your train?" Second class. Next: "Is your train moving in the superior direction?"

Superiority determines the natural order of trains and deserves some discussion. Trains in the superior direction have the right over trains of the same class in the opposite direction. First-class trains are superior to second-class trains, second-class are superior to third, and so forth. A timetable statement that eastward is the superior direction puts a first-class eastbound train on the top of the heap.

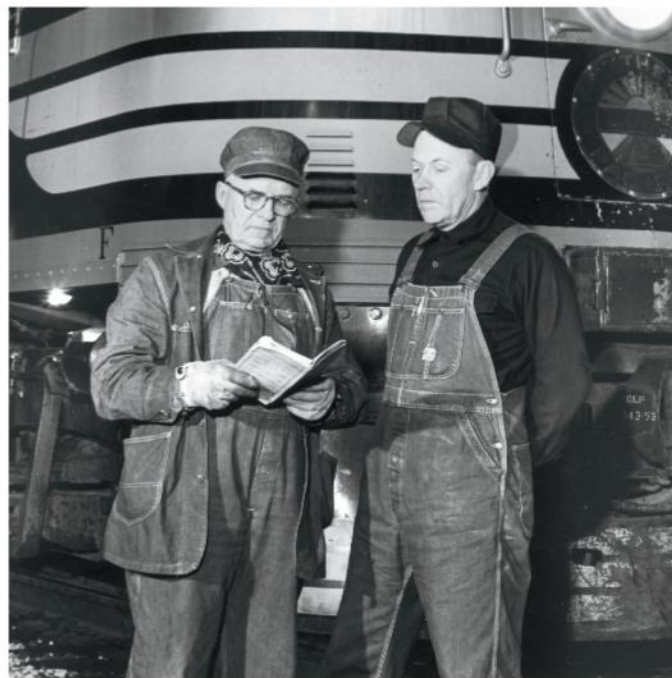
However, a train order can give a train right over any other. An order including the phrase "EXTRA 2268 WEST HAS RIGHT OVER NO. 2 ENG 261L" can make a lowly peddler freight superior to the *Super Chief*.

Returning to the checklist, you see that your host's timetable makes eastward the superior direction. Your train therefore has superiority over all except first-class trains. Number 206 is due to depart at 8:45 a.m., about 20 minutes from now, so it's time to figure out where the land mines are.

The timetable shows two opposing trains, both first-class westbounds. Number 11 was due at West Yard at 6:14 a.m. and No. 17 was due at 7:59 a.m. No matter what its schedule allows, 206 can't depart until Nos. 11 and 17 arrive, because they are superior by class. How will you know they have?



A TRAIN ORDER CAN GIVE A TRAIN RIGHT OVER ANY OTHER. AN ORDER ... CAN MAKE A LOWLY PEDDLER FREIGHT SUPERIOR TO THE SUPER CHIEF. — JERRY



Though he probably knows the schedules by heart, Southern Pacific engineer R.R. Ralston, left, checks over the employee timetable with his fireman, R.M. James, before departure in this 1954 photo at Los Angeles Union Station. Dick Turner photo

A train register is a record kept at stations designated in the timetable that shows the actual arrival and departure times of trains. The West Yard register shows that No. 11 arrived on time, but it has no entry for No. 17. The clock winds towards departure time when the operator waves you over for a friendly message that the overdue train is running about an hour late. Finally, train No. 17 rolls by. The switchtender lines you out, and your conductor waves a highball.

Now, consider a variation on the situation. Late connections, engine trouble, and other incidents have piled up hours-long delays to No. 17. The railroad advertises No. 206 with guaranteed freight delivery times. The dispatcher knows that he has to move 206 and issues a train order: "No. 206 ENG 3368 HAS RIGHT OVER NO. 17 ENG 2749

WEST YARD TO EASTPORT." This order makes you superior to No. 17. The yardmaster releases your train at 8:25 a.m. and you're ready to roll, craning your neck watching for your conductor's highball. Why is he strolling over to share some laughs with the yard crew?

A regular train may not leave before its scheduled departure time, 8:45 a.m. for No. 206. Your conductor knows the schedule gives him time to kill. He'll probably wander over to entertain the yard office next.

Mark's checklist makes it easy to apply the rules without being expert in them. I adapted his work and included it in my own Susquehanna employee timetable, making it a ready reference for my crews. As fundamental to timetable-and-train-order operation as it is, the superiority of trains is not complex. **MR**



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MORE ON THE WEB

🔗 This photo of Brian Wolfe's HO scale layout is this month's free desktop wallpaper. Get it at www.ModelRailroader.com.

As a manifest freight barrels through the crossing in York, Pa., a symbol of the railroad's burgeoning competition waits patiently. Brian Wolfe of Blue Ridge Summit, Pa., modeled the scene on his HO scale Western Maryland layout. Paul Dolkos shot the photo.





Exercising trackage rights over the Weston & Matherly RR, a southbound Pennsylvania RR train passes by Port Weston station on its way to the rail-marine terminal. The action takes place on Steve McIver's freelanced HO scale W&M model railroad. The locomotives are Life-Like Proto 1000 models; the station is modified from a Kibri kit. Steve shot the picture.

Send us your photos

Trackside Photos is a showcase for the work of *Model Railroader* readers. Send photos (digital images 5 megapixels or larger) to: *Model Railroader*, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612; or upload them to <http://fileupload.kalmbach.com/Submission/contribute>. For a copy of our photo submission guidelines, contact associate editor Steven Otte at sotte@mrmag.com.



A two-truck Climax hauling logs passes the engine shed in Chestnut Lake on the way to the sawmill. The Galeton & Chestnut Lake is Jerry Lauchle's freelanced HO scale logging railroad, set in northern Pennsylvania in the early 20th century. The Climax is a brass United import; the engine shed is a Fine Scale Miniatures model. Jerry, from State College, Pa., shot the photo.



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CLOSING DATES: Jan 2018 closes Oct. 20, Feb. closes Nov. 13, March closes Dec. 19, April closes Jan. 22, May closes Feb. 19, June closes Mar. 19, July closes Apr. 23, Aug. closes May 18, Sept. closes June 22, Oct. closes July 23, Nov. closes Aug. 17, Dec. closes Sept. 24.

Schedule of Events

CO, DENVER: Rocky Mountain Train Show March 3-4, 2018. Denver Merchandise Mart, 451 East 58th Avenue, Denver, CO 80216. Saturday, 10:00am-5:00pm, Sunday 10:00am-4:00pm. 2-1/2 acres of model trains of all scales, 30 layouts, 600 sales tables, clinics and more. Admission \$10.00 Free Parking. Phone: 303-364-0274 www.RockyMountainTrainShow.com information@RockyMountainTrainShow.com

FL, DELAND: 62nd FLORIDA RAILFAIR, Volusia County Fairgrounds (Tommy Lawrence Arena). Saturday, January 13, 9:00am-4:00pm and Sunday, January 14, 10:00am-3:30pm. Adults: \$9.00, good for both days (under 12 free). Over 300 tables. Large operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954. E-mail: rrrshows@aol.com

FL, STUART: Martin County Model Railroaders 11th Annual Train Expo. Martin County Fairgrounds, 2616 Old Dixie Hwy. January 20-21, 2018, 9:00am-3:00pm. Admission: Adults \$6.00, Operating layouts, sales tables, displays & NMRA information. Information: Bill Smet, 772-233-0279, mcmr2616@yahoo.com or PO Box 1498, Stuart, FL 34995.

GA, ATLANTA: 54th ATLANTA MODEL TRAIN & RAILROADIANA SHOW. Infinite Energy Center, 6400 Sugarloaf Parkway, Duluth, GA 30097. Saturday, January 20, 2018, 9:00am-4:00pm. Adults \$9.00 (under 12 free). Operating layouts. Miller 3106 N. Rochester St., Arlington, VA 22213, 703-536-2954. E-mail: rrrshows@aol.com

GA, SAVANNAH: Coastal Rail Buffs 29th Annual Model RR Train Show. National Guard Armory, 1248 Eisenhower Drive, Zip: 31406. January 27-28, 2018, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults 2 day \$7.00; Students/Seniors \$5.00, Active Duty Military/under 12 FREE. Dealer tables, operating layouts in O, HO, N. See www.coastalrailbuffs.org

IA, MONTICELLO: M.R.R.C. Train Show and Swap Meet. Bernides Center, Jones County Fairgrounds, 766 N. Maple St. Sunday, January 28, 2018, 9:00am-3:30pm. Admission \$5.00, children under 12 free. Contact Denny Beasley, CircleBarB607@aol.com or phone 319-270-1171 between 6 and 10 PM.

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 25, 2018, 10:00am-4:00pm. Early Bird shopping starts at 9:00am. Free parking. Largest show in downstate Illinois! For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com

IN, GARRETT: Garrett Model Railroad Club Annual Open House, December 10, 2017, Sunday 1:00pm-5:00pm Est. Operating Layout in basement of Museum, 302 N. Randolph St., Garrett, IN 46738. John Mohre 260-908-0754 Lehigman2003@yahoo.com

IN, INDIANAPOLIS: The Indianapolis Model Railroad Show and Open House. Manual High School Gymnasium. Saturday, March 3, 2018, 10:00am-3:00pm. Admission \$5.00, children 12 & under free. Boy Scouts in uniform free. Free parking. Naptown & White River Model Railroad Club. Contact: Steve Handly, 317-786-8627, E-mail: naptownmrr@gmail.com

IN, NOBLESVILLE: Central Indiana Division/NMRA Train Show. Hamilton County 4H Fairgrounds, 2003 Pleasant Street. Noblesville, IN. Sunday 28, 2018, 10:00am-3:00pm. Admission \$3.00 or \$5.00 family. Dealers, Portable Train Layouts, Clinics, Door Prizes. Dealer tables \$12.00. Contact Tom Cain 317-696-2818 or ats93@comcast.net

MN, WOODBURY: Newport Model RR Club Flea Market & Train Show. Woodbury High School, 2665 Woodlane Drive, Zip: 55125. January 20, 2018, 9:00am-2:00pm. Admission \$5.00. Future Show: April 7, 2018. Club Address: Newport Train Club, PO Box 0061, St. Paul Park, MN 55071. Contact: Ed, 651-233-3310

NC, NEW BERN: 23rd Annual Train Show, New Bern Riverfront Convention Center, 203 South Front Street. February 24-25, 2018 Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Admission \$7.00, under 12 free w/adult. Operating layouts, 90 vendor tables, food concession, door prizes. Carolina Coastal Railroaders, George Shalhoub, 252-626-3476

NY, LINDENHURST: Northern Spur Train/Diecast Vehicles/Toy Meet. Firemen's Memorial Park, 555 Heiling Blvd. (north of Hartford St.) January 7, 2018, February 18, 2018, April 8, 2018, September 23, 2018, November 4, 2018. 8:30am-1:00pm. \$5.00 adults, under 16 free w/adult. Handicap accessible. Contact: Carmelo Sancetta. PO Box 1286M. Bay Shore, NY 11706. 631-666-6855

NY, WEST SENECA: TCA Upstate NY Chapter Train Show. Ismailia Shrine Center, 1600 Southwestern Blvd., Zip Code: 14224. Sunday, January 11, 2018, TCA Members: 9:00am. General Public: 9:30am-2:30pm. Admission: Adults \$5.00, under 17 free with paid adult. Contact: Chuck 716-390-8216, E-mail: usnyc2015@gmail.com or www.upstate-ny-tca.com

OH, SPRINGFIELD: Springfield Area Model Railroaders Model Train Show and Flea Market. Clark County Fairgrounds, I-70, Exit 59. December 3, 2017, 11:00am-4:00pm. \$5.00, under 12 free. Robert D. Chaffin, Jr., PO Box 51, Springfield, OH 45501, 937-346-6734

PA, EPHRATA: Short Line Model Railroad Club's Annual Holiday Open House. Every Saturday and Sunday beginning in late November through mid January. Visit www.SLMRC.com for specific dates and times. 11 South State Street in Ephrata, Pennsylvania. Admission: free will donation.

SC, EASLEY: CRMHA MODEL TRAIN EXPO - \$7.00 Adults, Children FREE. Friday February 9th 1:00pm-7:00pm. Saturday, February 10th, 10:00am-4:00pm. Rock Spring Church - Impact Center, 207 Rock Springs Road, Easley, SC 29642. www.CRMHA.org 864-719-0096 or trainshow@crmha.org

SC, LAKE CITY: Ragsdale Building, 245 S. Church Street. Saturday, January 13, 2018, 9:00am-3:00pm. Admission \$5.00, under 10 FREE. Over 200 vendor tables, Thomas the Train & Friends, Railroad collectibles. Contact Todd at 843-307-8674, southcarolinatradeshow@gmail.com or www.SouthCarolinaTradeShows.com

TX, PLANO: NTC 3rd Annual Fall Plano Train Show. Plano Centre, 2000 E. Spring Creek Parkway. January 20-21, 2018, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Adults \$10.00, 12 and under free w/adult. All scales & Tin Plate. Dealer tables, How-To Clinics. Information: Chris Atkins, chris@railroadmodeler.com 469-438-0741. Visit www.dfwtrainshow.com

WI, LA CROSSE: The 27th Annual Great Tri-State Rail Sale. La Crosse Center, 2nd & Pearl Streets. January 27, 2018 9:00am-3:00pm. Admission \$5.00, under 12 free. 300 Tables; All Scales; Model, Toy & Antique Trains & Memorabilia. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383.

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Nicole McGuire, Vice President, Consumer Marketing. Date: September 29, 2017		

Both ends of the spectrum

As some of us in the hobby age, we need to consider the possible infirmities many of us will face. Our hands may tremble; our eyes may fail to see fine detail; our ears may betray years of listening to loud music or power tools; and our knees, feet, and backs may insist on more frequent breaks from standing.

If that's what's troubling you, step right this way to the land of Larger Scales. It's a land of milk and honey, where both ends of the modeling spectrum – fidelity to scale (or the lack thereof) and/or realistic operations – are right at hand.

That larger scale models offer the opportunity to add more visible detail is obvious. Even if N, HO, and O scale models are detailed to precisely the same degree, it will be easier to see the details in 1:48 than in 1:160 or 1:87.1. I'm sure that accounts for some of the migration to the larger scales I've noticed in recent years.

In other cases, modelers who have pretty much done their thing in N or HO are trying S or O scale to see what those modeling proportions offer. They quickly discover a solid base of manufacturers and importers catering to their needs, especially in the narrow gauges – Sn3, On3, and On30. They also discover that a lot of the stuff we take for granted in the smaller scales is a bit more difficult to find. And it usually costs more, often a lot more.

Cost is usually not the factor it first seems, however, as we typically need much less of this and that in the larger scales. Had I modeled the same section of the Nickel Plate Road in my basement in O instead of HO, I would



Big-time railroading on the Pennsylvania RR's multi-track main line is the theme of Neal Schorr's O scale empire. That he happens to use three-rail track is beside the point. Neal Schorr photo

have had to reduce the scope of the railroad by half or more. Half as many towns and staging tracks means greatly reduced expenditures for everything from structures to rolling stock.

To a lot of us old-timers, Lionel and American Flyer meant toy trains. Indeed, many small-train hobbyists still enjoy them today, as is evident from any issue of *Model Railroader's* sister magazine, *Classic Toy Trains*. Lionel and AF are rugged semi-scale trains that are easy and forgiving to use. But – and this is a key point to ponder – they can offer 100 percent realistic operations.

So, as long as we have track and rolling stock with flanged wheels, we can go railroading. There's nothing intrinsically mandatory about small trains being accurate scale models that applies to realistic operation beyond sheer appearance. We can build a train in a yard and send it out on the main line under timetable and train-order or centralized traffic control rules, whether we're

using superbly crafted scale models or toy trains.

I still have some of the Lionel O and O-27 equipment I got as a kid, and I suspect it will run just fine. That said, I doubt I will ever be tempted to build a model railroad for it. Too long ago, I discovered the merits of accurate scale models and would not easily ignore the compromises built into toy trains.

But that has almost nothing to do with whether we build two- or three-rail railroads. Neal Schorr, whose work is featured in *Model Railroad Planning 2017*, uses three-rail track but in all other ways is a very fastidious scale modeler. He built the railroad while he worked as a family doctor, and his son now enjoys the railroad with him, but he's also well positioned to enjoy the fruits of his labors into his retirement years.

So it appears that the two ends of the modeling spectrum may have moved closer than they once were. What we may have started out with as kids has matured into an alternative form of scale model railroading.

The variety of locomotives and rolling stock available as either two- or three-rail O scale models is astonishing. I recently discovered that even O fine-scale modeling, usually called Proto:48, has reasonably wide and diverse support by manufacturers and importers, yet demands more homework on the part of the participant – which can be seen as a benefit.

What yesterday may have seemed a bit off-putting may tomorrow look like a grand opportunity to continue your active involvement in the hobby. 



HALF AS MANY TOWNS AND STAGING TRACKS MEANS GREATLY REDUCED EXPENDITURES FOR EVERYTHING FROM STRUCTURES TO ROLLING STOCK. - TONY

N Scale

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1961 - Decommissioned

But still fondly remembered

While popular, the Hiawatha was eventually unable to compete with the prevalence of airline travel and, like the other transcontinental trains of its era, it was forced to retire. Nonetheless the "Olympian Hiawatha" remains a beloved piece of railroad history and some cars have been preserved for use with charter trains and other events.



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